March 3, 2011

Senate
PO Box 200400
Helena, MT. 59620-0400

Senate Energy & Telecomm. Committee
Exhibit No. 22
Date 3/3/2011
Bill No. HB 198

Dear Senator,

Subject: Oppose House Bill 198

Thank you for taking the time to accept this information as evidence in opposition to this bill. This is just some of the information that has been passed around from groups over the past year or so. Before casting your vote today, I pray that you will consider this information presented. There are far to many questions that have not been answered to just hand foreign and domestic merchant entities the right to condemn private property for their business ideas.

All of this new infrastructure will BLIGHT Montana and will cause property values to depreciate. This will put Montanan's in worse shape than they are currently. This bill is not just simply clarifying a law or even generally revising a law. There are many more detrimental issues at stake such as depreciated property values, infrastructure costs, higher taxes and utility rates, health and safety concerns, aviary deaths, fire risks, stray voltage, EMF pollution, environmental consequences, water quality, litigation costs, etc… the list goes on. This is about giving foreign and domestic companies the right to use private property for their wants rather than the landowners wants and needs.

Questions for our Senators:

Is this eminent domain law going to cause hardship and burdens on Montanan's?

Do Americans want to spend billions many, many, many, many, many more billions on an experimental wind industry and infrastructure or do they want to improve their businesses and pay good wages to those that work hard at their current jobs? Are green infrastructure jobs more important than the current businesses that people are running now? How many people will companies have to lay off to pay higher utility rates and taxes caused by multi-billions of infrastructure? How much is greening the economy going to cost? When the bubble bursts will Montanans go bankrupt paying for it? Energy usage is down. So why permit or build something at the present when it is not needed and would cost more Americans hardship. People can barely make their house payments. People are barely hanging on to their jobs. I ask you to weigh all of the issues that have been presented to you by the thousands of Citizens that have sent letters or called. Thank you in advance for reviewing the information below.

Feds Kill Thousands of Jobs to Employ a Few in "Green" Energy Feb 16th, 2011

Yet the politicians who've repeatedly derailed that possibility regularly boast of the relatively tiny number of jobs and energy that their tax-subsidized "green" technologies might someday create. http://nevadanewsandviews.com/2011/02/16/feds-kill-thousands-of-jobs-to-employ-a-few-in-green-energy/

No windfall in false promise of green jobs March 02, 2011

Gulen concluded job creation "cannot be defended as another benefit" of well-meaning green policies. In fact, the number of jobs these policies create is likely to be offset - or worse - by the number of jobs they destroy. http://www.theaustralian.com.au/news/opinion/no-windfall-in-false-promise-of-green-jobs/story-e6frg6zo-1226014388051#sidebar-end

To get out of debt, you have to quit spending money you do not have!
Both the MSTI and MATL Lines will cost consumers more. Why build lines to drain more Americans? The whole project has not been laid out and do you know the full impacts and details? If utility companies and investors are spend billions, many, many, many, many billions on infrastructure it will be paid by consumers. It will effect the private and public sector. It will effect you and your families! In stead of spending more money on more infrastructure pay people good wages in current public sector jobs. Please do NOT let foreign and domestic entities condemn Montana citizen's properties. I pray that you will oppose house bill 198!
God Bless Montana,

Micki Vardell
Concerned Citizen Montana

Information presented.

- White House Energy Polices Making U.S. Less Competitive, Costing Jobs. February 26, 2011
- $58 million green jobs boondoggle.
- Bankrupt Europe has a lesson for congress.
- Customers face hyge bill for wind farms that don't work in the cold.
- Dairy Blames Utility for Sick Cattle.
- Dairy farmer sues over stray voltage.
- Downed Power Lines Start Brush Fire
- Dr. Mercola Cancer Proven.
- EMF Pollution from Living Near Power Lines - Solved?

Three videos worth watching.

Obama's 825 Billion Dollar Stimulus Package. Govt. grew and lost 2 million jobs.

http://www.bing.com/videos/watch/video/bachmann-obama-put-u-s-deeper-in-debt/606a9f9
Economic Consequences?
Does Obama's spending fit into your business plans?
How much is infrastructure going to cost in Montana alone?

GOP: Green Jobs Are 'Subprime,' Not Like 'Traditional' Jobs We've Already Lost http://www.youtube.com/watch?v=-m1m206EHUQ

Selling the Stimulus

http://www.cnbc.com/id/15840232?video=1001304544&play=1

How Green Is Your Lost Job?

Posted 03/01/2011 06:20 PM ET
http://www.investors.com/NewsAndAnalysis/Article/564579/201103011820/How-Green-Is-Your-Lost-Job-.htm

Power: A study of renewable energy in Scotland shows that for every job created in the alternative energy sector, almost four jobs are lost in the rest of the economy.

New Wind Farms in the U.S. Do Not Bring Jobs

Millions Have Been Invested in Wind Farms, but That Hasn't Brought Jobs

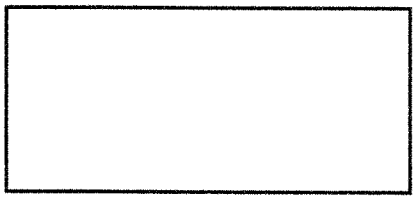
http://abcnews.go.com/WN/wind-power-equal-job-power/story?id=9759949

Real estate values surely will be affected by turbines

filed: **February 22, 2011** •

- Power Failure JK's Wind Farm In Disarray.
- Problem With Wind Power
- Adverse

FAR TO MANY TO LIST!



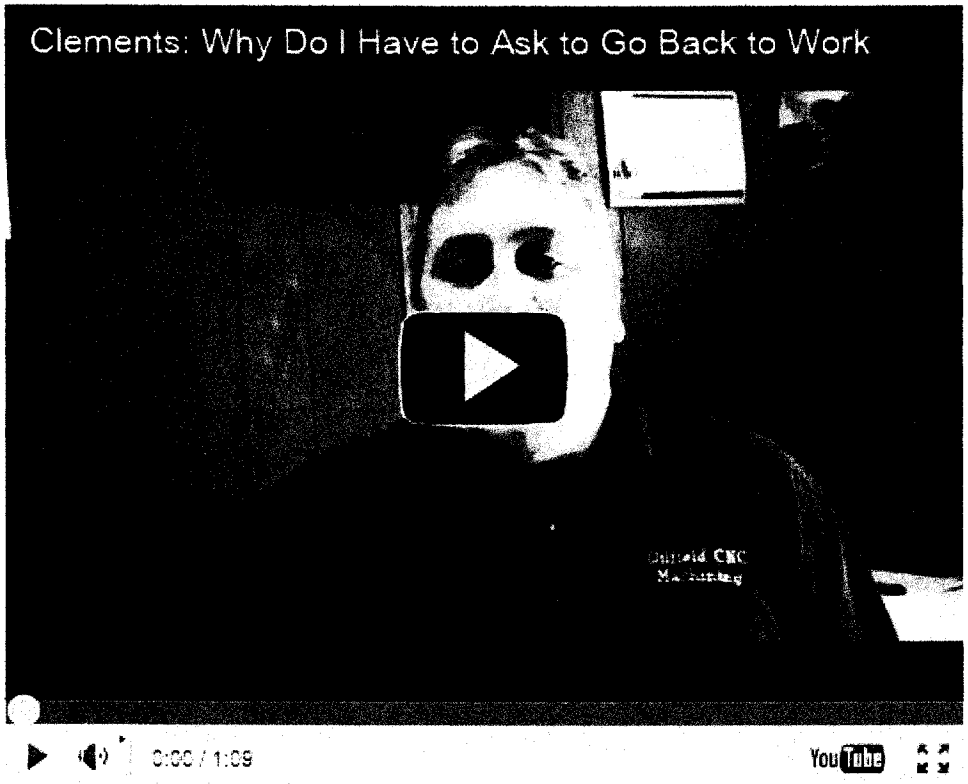
White House Energy Policies Making U.S. Less Competitive, Costing Jobs

posted at 11:15 am on February 26, 2011 by Jazz Shaw
printer-friendly

Pete Sepp, Executive VP of the American Taxpayers Union, digs in to Barack Obama's proposed changes to the corporate tax structure to determine just how terrific it will be if Uncle Sam can manage to dig a little deeper into the pockets of U.S. energy producers. Not only are the projected results predictable, but he finds that the White House seems to be playing favorites here in an effort to specifically target oil producers. He further notes that the oil industry is no stranger to "special treatment," since they already lay out more cash to the tax man than nearly anyone else.

> Far from qualifying as selective or excessive government fiscal policy, many of the tax rules President Obama brands as "oil subsidies" **are actually credits available to any U.S. manufacturer**–from microprocessor producers like Intel to coffee roasters like Starbucks to conglomerates like GE. Notice, though, that the administration didn't bother to specifically go after any of those sectors in his State of the Union last month.
>
> Consider this: since 1981, **oil and natural gas firms have paid more in taxes than their shareholders have earned in profits**. Specifically, between 1981 and 2008, the oil industry paid more than $388 billion to the federal and state governments in corporate income taxes alone, not counting excise, property, and other taxes. It also paid almost twice that amount, $683 billion, to foreign governments. That helps explain why **ExxonMobil recorded a larger income tax expense than any other U.S. company last year, some $17.6 billion or 47 percent of pretax earnings.**

There seems to be no inclination on the part of the White House to change course from increasing the cost of doing business for those who largely *still can't do any business* while the permitorium continues. Is this just affecting the drill rig employees working for the greedy oil barons? As Jim Hoft discovered with the video below, trickle down economics works both ways. Observe the case of Thomas Clements, owner of Oilfield CNC Machining in Broussard, LA.



> The present administration need to step up and they need to do this now and start giving out permits, and get us back to work.
>
> I don't know why we have to ask to go back to work. Everything that they've asked for is there. U.S. companies have gone above and beyond the call of duty. And America is the best at — the best at what we do.
>
> The federal government is over here, it's supposed to be protecting us from foreign companies or foreign entities — that's my understanding of what the federal government's role is — and here they are, not doing anything to protect us. We had great news come out yesterday, the Marine Well Containment System, and what's the president do, the administration? They say nothing. They haven't said anything, I mean, I would think that'd be extraordinary news for the Gulf of Mexico.

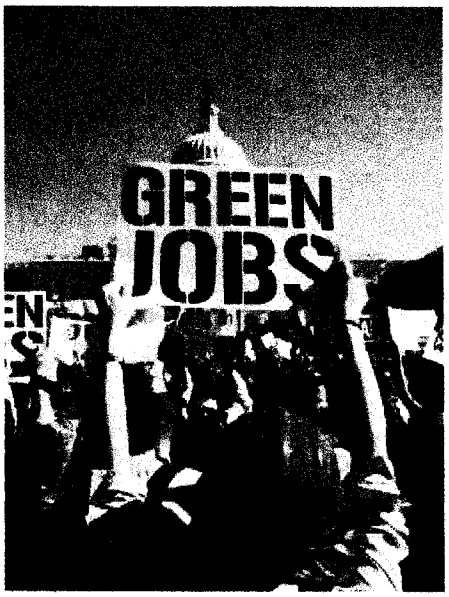
Clements' business has reported losses in excess of $400,000 since the rigs were effectively shut down. And if things don't improve by June, his company will likely close, with yet more jobs disappearing from the Gulf region for no reason other than a lack of support from Washington. The work is there to be done and the workers are ready willing and able. But with no permits the economy down there is drying up.

Are you listening, President Obama? Because the voters who need jobs most assuredly are.

This post was promoted from GreenRoom to HotAir.com.
To see the comments on the original post, look here.

The Bay State's $58 million green jobs boondoggle

By Michelle Malkin • January 12, 2011 01:33 PM



The myth that "green jobs" are a boon to the economy keeps getting pierced by failed green jobs boondoggle.

As I noted in April 2009, the truth about green jobs has been told all over the world. **Case in point: Spain.**

Every "green job" created with government money in Spain over the last eight years came at the cost of 2.2 regular jobs, and only one in 10 of the newly created green jobs became a permanent job, says a new study released this month. The study draws parallels with the green jobs programs of the Obama administration.

President Obama, in fact, has used Spain's green initiative as a blueprint for how the United States should use federal funds to stimulate the economy. Obama's economic stimulus package,which Congress passed in February, allocates billions of dollars to the green jobs industry.

But the author of the study, Dr. Gabriel Calzada, an economics professor at Juan Carlos University in Madrid, said the United States should expect results similar to those in Spain:

"Spain's experience (cited by President Obama as a model) reveals with high confidence, by two different methods, that the U.S. should expect a loss of at least 2.2 jobs on average, or about 9 jobs lost for every 4 created, to which we have to add those jobs that non-subsidized investments

with the same resources would have created," wrote Calzada in his report: Study of the Effects on Employment of Public Aid to Renewable Energy Sources.

The **latest green jobs failure in Massachusetts** is no surprise:

Evergreen Solar Inc., which received $58 million in state aid to open a factory in 2008 at the former military base in Devens, announced today it would shut the plant and let go 800 workers by the end of this quarter. The solar-panel plant is a cornerstone of Governor Deval Patrick's efforts to make Massachusetts a hub for the emerging clean-energy industry...

The company lost $54 million through the first nine months of 2010, and has, since its founding in 1994, accumulated a total deficit of more than $630 million. Last month, it engineered a reverse stock split to maintain capital requirements for the main Nasdaq stock exchange. Before the split, Evergreen's stock had been trading at about 50 cents.

Evergreen did not say what will happen to the solar-panel assembly work now done at Devens, but the company noted it will continue to operate facilities in China and Michigan.

But it was just a few short years ago the company was a darling in the eyes of the Patrick administration, which offered Evergreen a rich package of grants, land, loans, and other aid – some $76 million in all-to build a new facility at Devens. The company eventually accepted $58.5 million, one of the largest investments Massachusetts has made in a private company.

They should start calling them "brown jobs" — to reflect the color of the sewer down which untold millions have been flushed in the name of environmental stimulus.

February 15, 2010

Wind Energy's Ghosts

By Andrew Walden

Bankrupt Europe has a lesson for Congress about wind power.

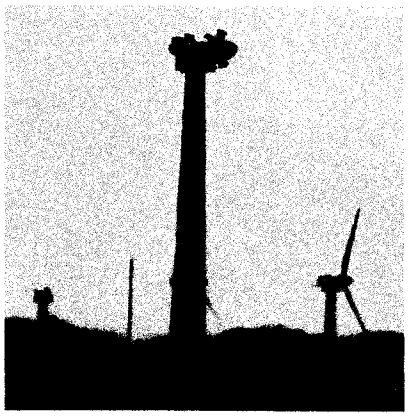
The sound floats on the winds of Ka Le, this southernmost tip of Hawaii's Big Island, where Polynesian colonists first landed some 1,500 years ago.

Some say that Ka Le is haunted -- and it is. But it's haunted not by Hawaii's legendary night marchers. The mysterious sounds are "Na leo o Kamaoa"-- the disembodied voices of 37 skeletal wind turbines abandoned to rust on the hundred-acre site of the former Kamaoa Wind Farm.

The voices of Kamaoa cry out their warning as a new batch of colonists, having looted the taxpayers of Spain, Portugal, and Greece, seeks to expand upon their multi-billion-dollar foothold half a world away on the shores of the distant Potomac River. European wind developers are fleeing the EU's expiring wind subsidies, shuttering factories, laying off workers, and leaving billions of Euros of sovereign debt and a continent-wide financial crisis in their wake. But their game is not over. Already they are tapping a new vein of lucre from the taxpayers and ratepayers of the United States.

The Waxman-Markey Cap-and-Trade Bill appears to be politically dead since Republican Scott Brown's paradigm-shattering Massachusetts Senate victory. But alternative proposals being floated by Senator Byron Dorgan (D-ND) and others still promise billions of dollars to wind developers and commit the United States to generate as much as 20% of its electricity from so-called "renewable" sources.

The ghosts of Kamaoa are not alone in warning us. Five other abandoned wind sites dot the Hawaiian Isles -- but it is in California where the impact of past mandates and subsidies is felt most strongly. Thousands of abandoned wind turbines littered the landscape of wind energy's California "big three" locations -- Altamont Pass, Tehachapi, and San Gorgonio -- considered among the world's best wind sites.



Built in 1985, at the end of the boom, Kamaoa soon suffered from lack of maintenance. In 1994, the site lease was purchased by Redwood City, CA-based Apollo Energy.

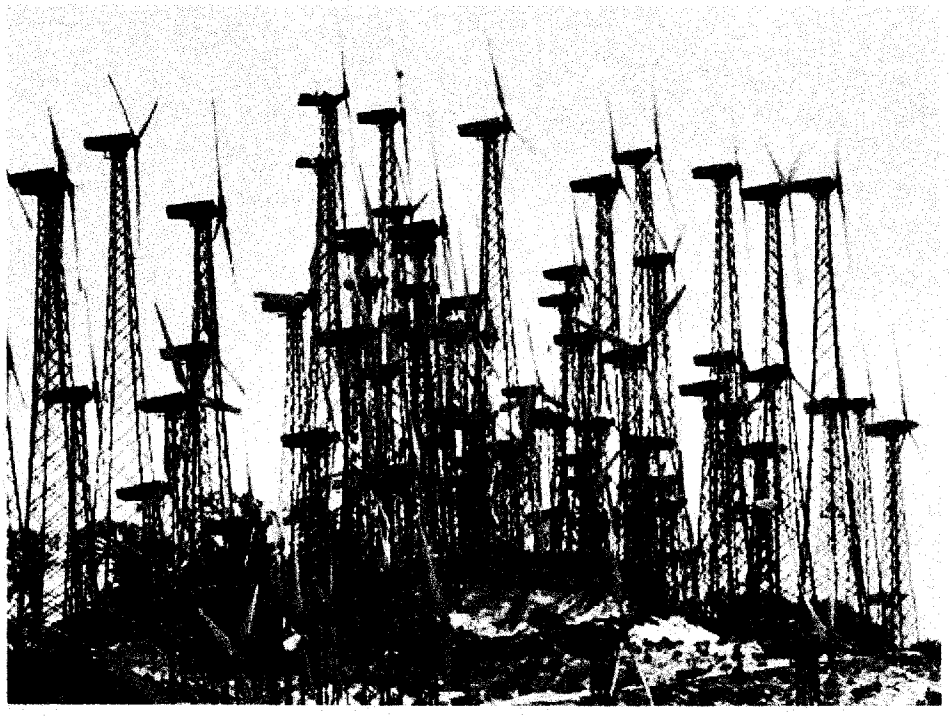
Cannibalizing parts from the original 37 turbines, Apollo personnel kept the declining facility going with outdated equipment. But even in a place where wind-shaped trees grow sideways, maintenance issues were overwhelming. By 2004 Kamaoa accounts began to show up on a Hawaii State Department of Finance list of unclaimed properties. In 2006, transmission was finally cut off by Hawaii Electric Company.

California's wind farms -- then comprising about 80% of the world's wind generation capacity -- ceased to generate much more quickly than Kamaoa. In the best wind spots on earth, over 14,000 turbines were simply abandoned. Spinning, post-industrial junk which generates nothing but bird kills.

The City of Palm Springs was forced to enact an ordinance requiring their removal from San Gorgonio. But California's Kern County, encompassing the Tehachapi area, has no such law. Wind Power advocate Paul Gipe, who got his start as an early 1970s environmental activist at Indiana's Ball State University, describes a 1998 Tehachapi tour thusly:

"Our bus drove directly through the Tehachapi Gorge passing the abandoned Airtricity site with its derelict Storm Master and Wind-Matic turbines and the deserted Wind Source site with its defunct Aeroman machines. We also got a freeway-close glimpse of Zond's wind wall with its 400 Vestas V15 turbines, the former Arbutus site on rugged Pajuela Peak where only the Bonus turbines are still in service, and steep-sided Cameron Ridge topped with FloWind's few remaining Darrieus turbines before reaching SeaWest, our first stop.

"As we approached SeaWest from the desert town of Mojave, the old Micon 108s were spinning merrily, but the Mitsubishis with their higher start-up speed were just coming to life. SeaWest and Fluidyne had done a commendable job of cleaning the Mitsubishis of their infamous oil leaks for the tour's arrival."



Tehachapi's dead turbines

(image via webecoist, sky#walker; Center for Land Use Interpretation; Terminal Tower)

Writing in the February, 1999 edition of *New Energy*, Gipe explains:

From 1981 through 1985 federal and state tax subsidies in California were so great that wealthy investors could recover up to 50 percent of a wind turbine's cost. The lure of quick riches resulted in a flood of development using new and mostly untested wind turbines. By the end of 1986, when projects already underway in 1985 were completed, developers had installed nearly 15,000 wind turbines. These machines represented 1,200 MW of capacity worth US$2.4 billion in 1986 dollars.

It took nearly a decade from the time the first flimsy wind turbines were installed before the performance of California wind projects could dispel the widespread belief among the public and investors that wind energy was just a tax scam.

Ben Lieberman, a senior policy analyst focusing on energy and environmental issues for the Heritage Foundation, is not surprised. He asks:

"If wind power made sense, why would it need a government subsidy in the first place? It's a bubble which bursts as soon as the government subsidies end."

After the collapse, wind promoters had a solution to their public image problem. Hide the derelict turbines. Gipe in 1993 wrote for the American Wind Energy Association:

Currently most of the older, less productive wind turbines are located within sight of major travel corridors such as I-580 and I-10. Many first generation turbines and some of the second generation designs are inoperative, and all turbines of these generations are more prone to mechanical failure than contemporary designs. Public opinion surveys have consistently found that inoperative wind turbines tarnish the public's perception of wind energy's efficacy."

Gipe then quotes a 1991 UC Davis study, which explains:

"Our research and that of others show that turbines' non-operation and public fear of wind farm abandonment is still a critical issue, and it therefore behooves the wind industry to return to the 'big three' wind farm sites (Altamont, San Gorgonio, and Tehachapi) and to ensure that these areas are operating as efficiently as possible, and all turbine arrays which do not contribute significantly and conspicuously to power production are either replaced or, if necessary, removed."

Altamont's turbines have since 2008 been tethered four months of every year in an effort to protect migrating birds after environmentalists filed suit. According to the Golden Gate Audubon Society, 75 to 110 Golden Eagles, 380 Burrowing Owls, 300 Red-tailed Hawks, and 333 American Kestrels (falcons) are killed by Altamont turbines annually. A July, 2008 study by the Alameda County Community Development Agency points to 10,000 annual bird deaths from Altamont Pass wind turbines. Audubon calls Altamont, "probably the worst site ever chosen for a wind energy project." In 2004 the group unsuccessfully challenged renewal applications for 18 of 20 Altamont wind farms.

From its beginnings as a slogan of the anti-nuclear movement, wind energy has always been tied to taxpayer support and government intervention. Wind farms got their first boost with the Carter-era Public Utility Regulatory Policies Act of 1978 (PURPA) which encouraged states to enact their own tax incentives. PURPA also for the first time allowed non-utility energy producers to sell electricity to utilities -- the first step towards a bungled half-privatization of electricity supply which would come two decades hence.

In the 1985 book "Dynamos and Virgins" a San Francisco based PG&E utility heir tells the story of how he joined forces in the 1970s with lawyers from the Environmental Defense Fund. Together they worked for years to obstruct coal and nuclear power plants until utilities were forced to do business with wind energy suppliers.

Protest and litigation remain among the foremost competitive tools used by the now multi-billion dollar "alternative" energy industry. Reviewing the book, Robert Reich, a Kennedy School of Government professor who would later become Clinton's Secretary of Labor, wrote:

"The old paradigms of large-scale production, centralized management, and infinite resources are crumbling. We are on the verge of a new political economy."

The new paradigm created by the generation of 1968 is more political and less economy. Without government intervention, utilities normally avoid wind energy. Wind's erratic power feed destabilizes power grids and forces engineers to stand by, always ready to fire up traditional generators. Wind does not fit into an electric supply model made up of steady massive low cost "base load" coal or nuclear plants backed up by on-call natural gas powered "peaker" units which kick in during high demand. No coal or nuclear power plant has ever been replaced by wind energy.

Although carbon credit schemes often assign profitable carbon credits to wind farm operators based on a theoretical displacement of carbon emitted by coal or natural gas producers, in reality these plants must keep burning to be able to quickly add supply every time the wind drops off. The formulae do not take into account carbon emitted by idling coal and natural gas plants nor the excess carbon generated by constant fire-up and shut down cycles necessitated to balance fluctuating wind supplies.

But with PURPA on the federal books, the State of California quickly created "Interim Standard Offer" (ISO4) contracts guaranteeing a purchase price based on utilities' "avoided costs"--launching the first "California Wind Rush". By 1982 turbines were sprouting from the dusty terrain of Altamont Pass, Tehachapi, and San Gorgonio. The ISO4 contracts were written with the assumption that fuel prices would continue to soar.

But that's not what happened.

By 1985 oil and natural gas prices were dropping. This changed the "avoided cost" calculations to the disadvantage of alternative energy producers. ISO4 contracts no longer guaranteed a price sufficient to attract investment in wind energy. Construction of new turbines stopped. As the old ten-year contracts began to expire in the late 1980s, renewals were pegged at much lower avoided cost estimates. As a result, many California wind developers quickly closed up shop, abandoning their turbines to moan out the one note song.

Then Enron got involved.

Building on the foundation laid by PURPA, 1992 Energy Policy Act (EPAct) began the partial deregulation of wholesale -- but not retail -- electricity. Reich in 1985 had lauded the "crumbling" of "large-scale production (and) centralized management". He got his wish. EPAct set the stage for Enron's California energy market manipulations which led to the 2003 recall of Governor Gray Davis (D-CA). The movement started by a PG&E heir led to the bankruptcy of PG&E. Perhaps this is why some call the children of the 1960s "the destructive generation."

Designed to create a renewable energy trading market, EPAct -- much of which took effect in 1997 -- created a combination of mandates, incentives, and tax credits. These included:

- laws requiring large wind producers to be allowed to tie into the existing utility grid
- "Renewable Portfolio Standards" forcing utilities to buy intermittent wind generated electricity.
- "Renewable Energy Certificates" tradable separately from the electricity itself to sell to companies needing to meet the portfolio standards.
- A 10-year "Production Tax Credit" that now equals $.019/kWh
- Accelerated depreciation allowing tax write-off using an accelerated 5-year double-declining-balance method (40% per year).

Wind capacity had stagnated through the mid-1990s. But Enron in January, 1997 bought out Tehachapi-based industry leader Zond Corporation - launching the second California Wind Rush.

Four years later, Enron would implode. The company which gamed a government-crippled artificial marketplace was deconstructed as poster boy for unbridled capitalism.

But the tax credits, mandates, and regulations which made Enron possible did not die with it. Enron Wind's turbine manufacturing subsidiary was purchased by General Electric. Many of its wind farms went to Florida Light and Power. By 2009, the US Department of Energy estimates mandate-and-subsidy-driven wind capacity would rise to 28,635mw.
That much coal or nuclear "capacity" would power 28.635 million homes, but wind "capacity" is calculated assuming perfect wind 24 hours a day, 365 days of the year. At the best wind sites, such as Kamaoa, newly installed turbines generate only 30-40% of "capacity". At most sites, the figure is 20% or less. After 30 years of development, wind produces only 2.3% of California's electricity.

And then there is maintenance. The turbines installed in the first wind rush were not very reliable. Some never worked at all. As the years passed and the elements took their toll, downtime climbed ever closer to 100% and

production dwindled to negligible amounts. Developers often set malfunctioning turbines to "virtual" mode -- blades spinning without generating electricity -- in order to keep oil circulating inside the turbine drive. Of course this habit also gives passing drivers an illusion of productivity.

Wind developers claim that today's American and European-made turbines are more reliable and longer-lasting than their old-tech predecessors. But new Chinese turbine manufacturers of untested quality are crowding the marketplace Europe's subsidy-driven turbine meisters are chased from their home markets.

After the debacle of the First California Wind Rush, the European Union had moved ahead of the US on efforts to subsidize "renewable" energy--including a "Feed in Tariff" even more lucrative than the ISO4 contracts. EU governments provided government-backed securities to support utilities burdened by Feed-in Tariff costs. But last year, as the national debt of wind-intensive EU countries became unbearable, the EU subsidy bubble burst.

Wind maven Gipe proudly takes a page from the disastrous European playbook, crediting himself with "Almost single-handedly launch(ing) a campaign for Advanced Renewable Tariffs (electricity feed laws) in North America."

But addressing a Heritage Foundation seminar last May, Dr. Gabriel Calzada, Professor of King Juan Carlos University in Madrid explained what Feed In Tariffs and other wind subsidies did to Spain (as well as Portugal and Greece) got into debt:

"The feed-in tariff... would make (utility) companies go bankrupt eventually. So...the government guarantees...to give back the money in the future -- when (they) are not going to be in the office any more. Slowly the market does not want to have these securities that they are selling. Right now there is a debt related to these renewable energies that nobody knows how it is going to be paid -- of 16 Billion Euros."

In early 2009 the Socialist government of Spain reduced alternative energy subsidies by 30%. Calzada continues:

"At that point the whole pyramid collapsed. They are firing thousands of people. BP closed down the two largest solar production plants in Europe. They are firing between 25,000 and 40,000 people...."

"What do we do with all this industry that we have been creating with subsidies that now is collapsing? The bubble is too big. We cannot continue pumping enough money. ...The President of the Renewable Industry in Spain (wrote a column arguing that) ...the only way is finding other countries that will give taxpayers' money away to our industry to take it and continue maintaining these jobs."

That "other country" is the United States of America.

Waxman-Markey seems dead, and Europe's southern periphery is bankrupt. But the wind-subsidy proposals being floated in Congress suggest that American political leaders have yet to understand that "green power" means generating electricity by burning dollars.

***Andrew Walden edits** hawaiifreepress.com.*

79 Comments on "***Wind Energy's Ghosts***"

By Tom Mcghie
January 9, 2010

Customers face huge bill for wind farms that don't work in the cold

The failure of Britain's wind farms to produce electricity in the extreme cold will cost billions of pounds, create an economic crisis and lead to blackouts, leading industrialists have warned.

To cover up the ineffectiveness of wind farms the Government will be forced to build emergency back-up power plants, the cost of which will be paid by industry and consumers.

Jeremy Nicholson, director of the Energy Intensive Users Group, which represents major companies employing hundreds of thousands of workers in the steel, glass, pottery, paper and chemical industries, said the failure of wind power had profound implications.

Flawed: To cover up the ineffectiveness of wind farms the Government will be forced to build emergency back-up power plants, the cost of which will be paid by industry and consumers.

He was speaking after new figures showed that during the latest cold snap wind turbines produced less than two per cent of the nation's electricity.

Now Mr Nicholson predicts that the Government will encourage power companies to build billions of pounds worth of standby power stations in case of further prolonged wind failures.

And the cost of the standby generation will be paid for by industry and households through higher bills – which could double by 2020.

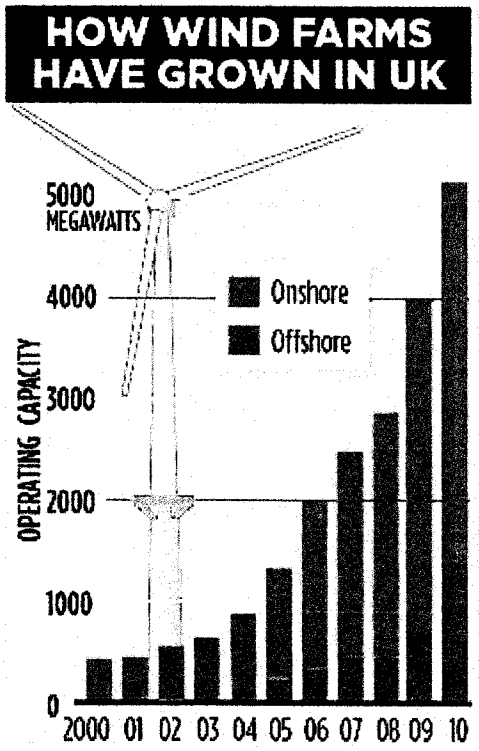
Industry regulator Ofgem has already calculated that the cost of achieving sustainable energy targets – set by Brussels but backed by the British Government – will amount to £200 billion, which will mean that annual household fuel bills will double to about £2,400 on average within the next ten years.

In the last quarter ending December 23, wind turbines produced on average 8.6 per cent of our electricity, but the moment the latest bad weather arrived with snow and freezing temperatures, this figure fell to as low as 1.8 per cent.

The slack was immediately taken up by efficient, but dirty, coal-fired power stations and oil-fired plants.

'What is so worrying is that these sort of figures are not a one off,' said Mr Nicholson. 'It was exactly the same last January and February when high pressure brought freezing cold temperatures, snow and no wind.'

In fact last year, the failure of wind power to produce electricity was even more profound.



Then, over a few days, the lack of wind meant that only 0.2 per cent of a possible five per cent of the UK's energy was generated by wind turbines.

So little energy was generated then that the National Grid, which is responsible for balancing supply and demand of energy in the UK, was forced to ask its biggest users – industry – to ration supplies.

What really concerns industrial users is that it is Government policy to put wind power at the centre of its efforts to ensure that 30 per cent of electricity is generated by renewable resources by 2020.

This means that the number of turbines now running – 3,140 – will have to be massively increased to well over 6,000 in ten years time.

But this huge surge in wind farm activity will come at the same time as an EU Directive will insist that we close down our coal-fired and oil-fired power stations.

Mr Nicholson said: 'We can cope at the moment because there is still not that much power generated from wind. But all this will change. What happens when we are dependent on wind turbines for 30 per cent of our power and there is suddenly a period when the wind does not blow and there is high demand?

'We will be forced to switch off the gas and it could even lead to power cuts.' The Government is aware of the dangers of relying on intermittent power sources and is working on plans to encourage energy companies through financial inducements to have stand-by generation.

Mr Nicholson said: 'At least the Government is aware of the problem, but it will cost billions to put these measures in place and we will have to pick up the tab.

A Department of Energy and Climate Change spokesman said: 'Wind power provides a home-grown source of electricity that doesn't produce carbon dioxide.

'The electricity system always has more generating capacity available than the expected demand. By having a diverse energy mix, we can manage the fact that some technologies are intermittent.'

The National Grid is also aware of the problem and has set up a team to look at solving the problem of erratic energy supplies.

One of the solutions being considered is changing demand at times of crisis. For example, setting up systems to stop electricity supplies to millions of fridges for an hour or so.

This would be possible by having 'smart' meters and would save massive amounts of energy.

Dairy Blames Utility for Sick Cattle

Another dairy has filed a "stray voltage" case against Idaho Power Co., alleging the utility has shown "complete indifference" to electrical safety precautions.

The Green River Dairy's suit follows a landmark jury award of $17.5 million to a Twin Falls couple, Mike and Susan Vierstra. The jury ruled in February that stray voltage from Idaho Power's antiquated equipment sickened the Vierstras' cows.

"Idaho Power's treatment of this serious situation has revealed a complete indifference to safety precautions regarding distribution lines near dairies," Green River says in its complaint.

The utility's motions in the Vierstras' case for a new trial and judgment notwithstanding the verdict are pending before an Idaho district court judge in Twin Falls. (*Twin Falls Times-News*).

See also ... Record Stray Voltage Win for Dairy.

5/24/03

Dairy farmer sues over stray voltage

By Marie Rohde, Journal Sentinel, Inc
Dec. 16, 2008 |(0) COMMENTS
A former dairy farm family has filed a civil lawsuit against WE Energies, contending that stray voltage caused reduced milk production and cows to act strangely.

While there have been several similar suits filed across the state and the controversial issue has been debated for decades, this is the first such case filed in Milwaukee County, said Scott Lawrence, a lawyer representing Brunner Farms, a family corporation that went out of business in 2005. The Brunner family sold their 500 cows in 2003 in large part because of the problems caused by the stray voltage, said Greg Cook, another lawyer representing the Brunners.

The farm was in Cecil in Shawano County. Although the lawsuit makes no specific monetary demand, Lawrence said the estimated economic loss was $3.5 million, and that under some circumstances, damages can be tripled.

The Brunners, like many other farmers around the country, contend that their cows have been adversely affected by low levels of stray voltage and power companies are to blame. Symptoms include reduced milk production, nervousness during milking and a reluctance to enter barns or go to certain areas of the barns. Lawrence said the Brunners noticed a 20% decline in milk production between 1999 and 2001, and that the cows wouldn't breed.

The Brunners are a well-respected dairy farm family — two of the sons of the owner have dairy science degrees from the University of Wisconsin-Madison and a third is a veterinarian. The utility says on its Web site that the symptoms can be caused by other things and stray voltage can be caused by wiring on a farmer's property rather than by the power company's lines.

Barry McNulty, speaking for the utility, said the power company would not comment on pending litigation but in general: "The reality of stray voltage has often become blurred with unsubstantiated allegations of harmful earth currents, magnetic fields, harmonics and many other electrical phenomena. WE Energies will stay apprised of ongoing research into stray voltage and other electrical phenomena."

Lawrence said the suit was filed in Milwaukee County because the utility has corporate offices here.

Comments (0)

Downed Power Lines Start Brush Fire

February 22, 2010

The Century Station of Escambia Fire Rescue responded to a brush fire Monday afternoon that was caused by a downed high voltage power line.

The downed power line and brush fire were reported in the 8000 block of Blackmon Street about 4:45. The line was reportedly a ground or neutral on high voltage line leading to a nearby power substation on North Century Boulevard.

No structures were involved. It was not known how many Gulf Power customers, if any, lost power as a result of the downed high voltage line.

TUESDAY September 18, 2007 (Foodconsumer.org) -- A new study found ever living near high-voltage power lines may dramatically increase risk of cancer, adding to a growing body of evidence showing that exposure to electromagnetic fields (EMF) is a cause for cancer.

The study led by Lowenthal R. M. from University of Tasmania School of Medicine in Hobart, Australia and colleagues meant to determine whether there is an increased risk of lymphoproliferative disorders (LPD) or myeloproliferative disorders (MPD) in those who have been ever exposed to high-voltage power lines.

In the study, the researchers enlisted 854 patients diagnosed with LPD or MPD including leukemia, lymphoma and related conditions aged 0 to 94 years who were diagnosed with a condition in Tasmania between 1972 and 1980. Enlisted were also sex and age matched controls.

Those who had ever lived within 50 meters from a power line were 106 percent more likely to develop LPD or MPD than those who lived more than 300 meters away from a power line.

Compared to those who lived more than 300 meters away from a power line, those who had lived between 50 and 300 meters away from a power line were 30 percent more likely to develop LPD or MPD, the study showed.

Adults who had lived within 300 meters of a power line during the first 15 years of life were 223 percent more likely to develop LPD or MPD compared to those who lived farther away from a power line. Those who had lived within the same distance, but aged 0 to 5 years had a fivefold increase in risk.

When only those who had lived in Tasmania all the time were included for the study, the associations were much stronger.

The authors concluded "although recognizing that this study has limitations, the results raise the possibility that prolonged residence close to high-voltage power lines, especially early in life, may increase the risk of the development of MPD and LPD later."

The study titled "Residential Exposure to Electric Power Transmission Lines and Risk of Lymphoproliferative and Myeloproliferative Disorders: a Case-Control Study" was reported in the September 2007 issue of Internal Medicine Journal.

What increases the risk of cancer might be EMF emitted from the power lines. EMF has been extensively studied for its possible effects on cancer. EMF from power lines, home wiring, airport, and military radar, substations, transformers, computers, and electric appliances were linked in previous studies to brain tumors leukemia, chest defects, miscarriage, cataracts
, heart problems, nausea, chest pain, forgetfulness, cancer and many other health problems, according to Dr. Josef Mercola, the operator of mercola.com, a site that promotes natural health.

According to Dr. Mercola, The U.S. Environmental Protection Agency initially intended to backlist EMF as a "probable human carcinogen", meaning that evidence from lab and animal studies are strong enough to list it as carcinogen, but studies on humans are not available because EMF can not be tested in humans.

Nevertheless, the EPA later changed its mind and did not list EMF as carcinogen as it heard the opposing voice from utility, military, and computer lobbyists. The federal agency instead said "At this time such a characterization regarding the link between cancer and exposure to EMF's is not appropriate because the basic nature of the interaction between EMF's and biological processes leading to cancer is not understood," quoted by Dr. Mercola.

Dr. Mercola said experts tend to believe that EMF is a risk for cancer. Even the World Health Organization acknowledged some acute conditions induced by EMF including headache, fatigue, stress, sleep disturbances and skin symptoms such as pricking burning sensation, rashes and muscle pains among others, according to Dr. Mercola.

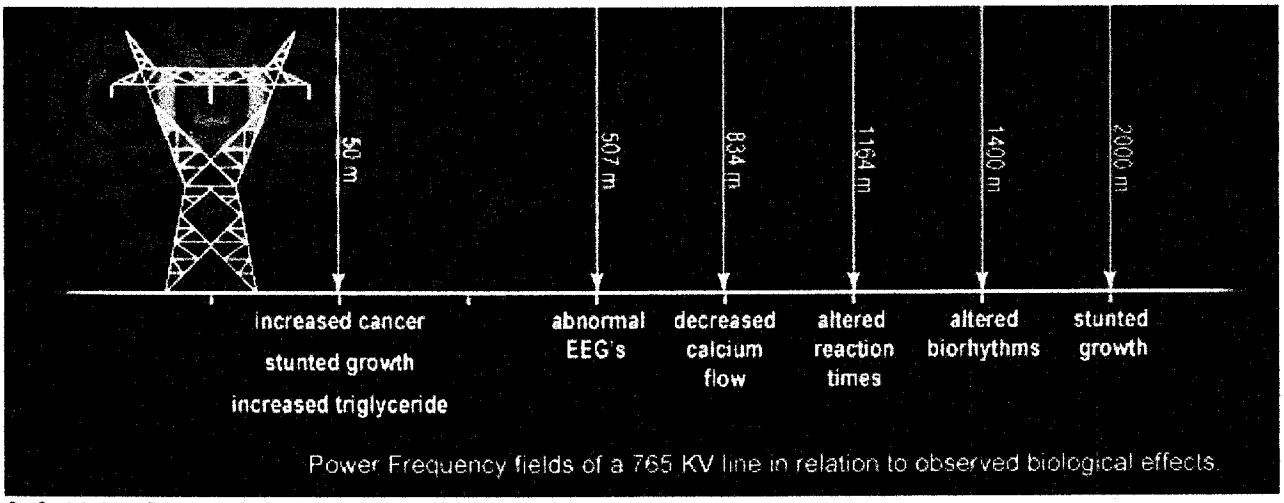
EMF Pollution from Living Near Power Lines - Solved?

Power lines and electrical poles have become so common on the landscape, they are virtually invisible. But it's worth taking a hard look at them. **Are you living near power lines?** What is that barrel-shaped device on the electric pole and is it harmful? Did you grow up near a high-voltage power line?

Is there a safe living distance from or to power lines?

Experts say as far as possible ... Hundreds of studies worldwide have shown that living next to high voltage power lines and other parts of the power transmission network increases your risk of cancer and other health problems.

We'll examine those risks below, and the recommended SafeSpace solutions designed to minimize and eliminate the health risks.



Safe Living Distance To Power Lines?

Is It Harmful To Sit Under Power Lines?

Absolutely possible. It depends on how powerful are the EMFs coming from your neighborhood power lines? The electrical power grid uses a "step down" system of distribution, highest near the generating station and substations, lowest at the end. The closer you are the more you are bombarded with dangerous EMFs.

Living Under Power Lines? Some Facts You Should Know

High voltage transmission lines (those towering metal power lines you often see usually along highways and across rural landscapes. Some folks, unfortunately are under them.):

- Use high voltage direct current (HVDC) to transmit large amounts of power from the generating station over long distances
- Voltage varies from 138kV to 765kV
- Radiate powerful electromagnetic fields (EMFs)
- Linked to diseases in animals and humans
- There is growing speculation that the values of homes near major power lines will soon begin to decrease because of this threat

Transmission substations, (which often look like a fenced-in thicket of metal structures. Maybe you see one near your home, school or office.):

- Contain circuit breakers, switches and transformers
- Decrease the voltage coming from high voltage transmission lines
- Connect to local, lower voltage distribution lines.
- Reroute power to lines that serve local markets
- Suspected cause of cancer clusters for nearby residents

Lower voltage distribution lines, (or local power poles, which are everywhere):

- Are smaller than the huge high voltage lines
- More likely to be seen in residential areas
- Sometimes buried
- Risk varies with strength of voltage

Transformers, (those barrel-like metal trashcans mounted on power poles are EMF factories.):

- Reduces the voltage to the 120-/240 current needed by the nearby homes
- The typical power line feeding the transformer is carrying 4000 to 13,000 volts
- Creates a strong field extending up to a 1/4 of a mile
- The strength of this field decreases significantly with distance (the further away you are the better, even if you are still within a quarter mile)
- Health risk depends on strength of incoming power line

Buried lines and transformers (Recognizable by a metal box located on the ground near the street.):

- Some people contend that burying power lines can mitigate EMF dangers.
- Other experts note that while burying power lines will shield the electric component of the electromagnetic field (EMF), the magnetic component can still pass through the earth—and walls and human bodies.

Electric Fields, Magnetic Fields & Power Lines are a Health Hazard!

There is no question that power transmission apparatus emit electromagnetic fields (EMFs).

An EMF is not just one thing, but two kinds of fields:

- **Electrical field:** the part of the EMF that can easily be shielded.
- **Magnetic field:** part of the EMF that can penetrate stone, steel and human flesh. In fact, when it comes to magnetic fields, human flesh and bone has the same penetrability as air!
- **Both fields are invisible and perfectly silent:** if you live in an area with electric power, cell phone service, water pipes and more, some level of artificial EMF is surrounding you.

Living Close to Power Lines and How EMFs Harm Human Health

Your body acts like an energy wave broadcaster and receiver, incorporating and responding to EMFs. In fact, scientific research has demonstrated that every cell in your body may have its own EMF, helping to regulate important functions and keep you healthy.

Strong, artificial EMFs like those from power lines can scramble and interfere with your body's natural EMF, harming everything from your sleep cycles and stress levels to your immune response and DNA!

Studies Show Living Next To Power Lines Increases The Risk Of Cancer

After hundreds of international studies, the evidence linking EMFs to cancers and other health problems is loud and clear. High Voltage power lines are the most obvious and dangerous culprits, but the same EMFs exist in gradually decreasing levels all along the grid, from substations to transformers to homes.

From the British Medical Journal, June, 2005:

Researchers found that children living within 650 feet of power lines had a 70% greater risk for leukemia than children living 2,000 feet away or more.

From Epidemiology, 2003 Jul;14(4):413-9:

"Several studies have identified occupational exposure to extremely low-frequency electromagnetic fields (EMF) as a potential risk factor for neurodegenerative disease."

From Epidemiology, 2002 Jan;13(1):9-20

There is "strong prospective evidence that prenatal maximum magnetic field exposure above a certain level (possibly around 16 mG) may be associated with miscarriage risk."

From the Internal Medicine Journal, 2007

In a study of 850 lymphoma, leukemia and related conditions, researchers from the University of Tasmania and Britain's Bristol University found that living for a prolonged period near high-voltage power lines increased the risk for these conditions later in life.

- People who lived within 328 yards of a power line up to age 5 were five times more likely to develop cancer as an adult.
- People who lived within 328 yards of a power line at any point up to age 15 years were three times more likely to develop cancer as an adult.

Dr. David Carpenter, Dean of the School of Public Health (SUNY), believes that up to 30% of all childhood cancers come from exposure to high voltage power lines.

Even the Environmental Protection Agency (EPA) cautions citizens that "There is reason for concern" and advises "prudent avoidance" of high voltage power lines.

The California Department of Health concluded that EMFs were responsible for an increase in childhood leukemia, adult brain cancer, Lou Gehrig's disease and miscarriage in the 2002 report, "An Evaluation of the Possible Risks From Electric and Magnetic Fields (EMFs) From Power Lines, Internal Wiring, Electrical Occupations and Appliances."

The studies cited above and dozens of other epidemiological studies specifically link high voltage power lines with:

- Brain tumors
- Leukemia
- Birth defects
- Lymphoma

Electromagnetic Radiation and Power Lines. It's a Problem.

According to research and publications put out by the World Health Organization (WHO), EMF such as those from power lines, can also cause:

- Headaches

- Fatigue
- Anxiety
- Insomnia
- Prickling and/or burning skin
- Rashes
- Muscle pain

You Need EMF Shielding From Electrical Power Lines & Transformers!

High voltage power lines, and radiation are something that can affect urban and rural communities alike. In truth, few residential areas escape this threat. For now, it's critical to understand your risk of liivng close to power lines and how protect the area around you.

SafeSpace: Technologies To Treat And Transform Harmful EMFs

Over years of research and testing, we've developed proven technologies specifically developed to interact with and transform even the more powerful EMFs. (See independent laboratory testing.)

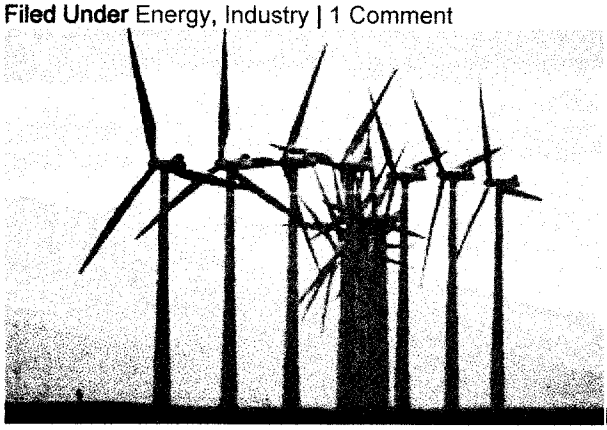
Our devices are imprinted with proprietary patterns (coded information) that literally influence artificial electromagnetic fields. When this information is added to a harmful wavelength, that wavelength is transformed to a benign, even positive influence on biological life it surrounds.

Affordable, easy-to-use solution for EMFs associated with electrical power transmission:

Power Failure: UK's Wind Farm Plans In Disarray

Posted on October 28, 2010

Filed Under Energy, Industry | 1 Comment



Hundreds of local revolts against wind farms have jeopardized the plan to use them to generate more than a quarter of Britain's electricity, figures seen by The Independent reveal. New wind farms are needed to have any chance of creating enough renewable energy to reduce reliance on coal and gas power production. But planning approvals for them in England are at an all-time low, with only one in three applications getting the go-ahead from councils in the face of angry and organised opposition from people living nearby. More than 230 separate local campaign groups against wind farms are operating across the UK, from Scotland and Kent to Norfolk, Yorkshire and Cornwall. These groups are scoring striking successes in defeating planned wind farms – even when faced with the weight of official recommendations. In the last 12 months to September, there has been a 50 per cent drop in planning approvals in England, and approvals for windfarms in Scotland have also fallen. The number of new windfarms coming "on-stream" (becoming active) has also fallen by 30 per cent – partly as a result of the recession. The figures are revealed in a report on the state of the industry which will be published next week and has been seen by The Independent. They cast doubt on the ability of the Government to reach its target of generating 20 per cent of all our energy needs from renewable sources by 2020. Changes to planning laws due to be announced later this year are expected to make it harder still to get planning permission. Campaigners say that although windfarms maybe needed to combat global warming, the turbines – often as tall as the London Eye – are an eyesore in some of the most beautiful parts of the country, unacceptably noisy and can decimate local bird population. They suggest that all new windfarms should be built off-shore. But environmentalists and industry experts say this is unrealistic. The time needed to build off-shore wind farms can be up to seven years, they are more expensive and the technology is still a relatively immature. If Britain is to meet its renewable targets, they say, it is vital that onshore wind farms continue to be built at a significant rate well into the 2020s. The situation is typified by instances such as those in North Yorkshire, where local politicians recently vetoed plans to build seven turbines in the face of official advice that they should go-ahead after a concerted local campaign. Permission for the windfarm was later granted on appeal to the Planning Inspectorate but Maurice Cann, head of planning at Hambleton District Council, said that might not happen under the Government's new localism plans.

"The court of public opinion plays a big role here," he said. "I can see the situation getting worse. Some of these structures are 125 metres high and have a huge visual impact. It does not surprise me at all that so many applications are getting rejected. "With the Government's agenda to give a stronger voice to local politicians this is only going to become more of an issue." Local councils are to get more power to make planning decisions in their areas and the Planning Inspectorate, which has given the go-ahead to a number of wind farm projects turned down by local planning authorities, is to be abolished. It now takes on average nearly two years from the point of application for windfarms to be approved by local councils and even then up to three-quarters will be unsuccessful, according to the report by RenewableUK, which represents the windfarm industry. This compares with a 70 per cent approval rating for other major infrastructure projects such as supermarkets and roads. "The industry has significant concerns for both the rate and consistency of local decision making on projects yet to come forward for determination," the report concludes. Gordon Edge, director of policy for RenewableUK, said that for every completed windfarm, 18 projects had been considered and rejected, either for feasibility or planning problems. "One of the main issues for us is the cost and the unpredictability of the planning system. If we are going to meet our renewables target it is vital that we have a planning system that we can predict and depend on." Martyn Williams, from Friends of the Earth, said he could understand why people were opposed to windfarms in their local areas but a compromise needed to be found. "The dilemma is that we believe people should be able to say what they want where they live but at the same time every part of the country has to do its bit if we are to get

emissions down to a sustainable level. "What we would favour is for local area to be given their own carbon targets and make there own decisions on how they get – and that is very relevant to [David] Cameron's idea of the big society."

Michael Hird, from the Campaign against Windfarms, said they were proud of the fact that they had managed to significantly slow down the growth of turbines across Britain. "We are fighting from the trenches to slow down the growth of windfarms until people understand just how bad they are. "The windfarm industry had hoped to created 10,000 windfarms by now and they've only managed 2,500. That is some success but there is still a long way to go." Mr Hird added that one of the problems they faced was the huge subsidies available to farmers prepared to have wind farms on their land. "They've been unbelievably generous and a lot of farmers have been persuaded by the money on offer. The industry will build these things everywhere unless somebody stops them." Gary Porter, Chairman of the Local Government Association's Environment Board, insisted councillors were not to blame but the system. "Councillors are elected to represent the interests and concerns of people in their area and will quite rightly take this into account when making decisions on whether to permit this sort of development," he said. "The industry must do more to make sure that they choose suitable sites which get local support. The refusals are not a reflection on councils but on the poor quality of the applications. "It is only when local communities can see clearly the benefits of renewable energy at both national and local level that individual proposals for renewable energy will be welcomed as a matter of course."

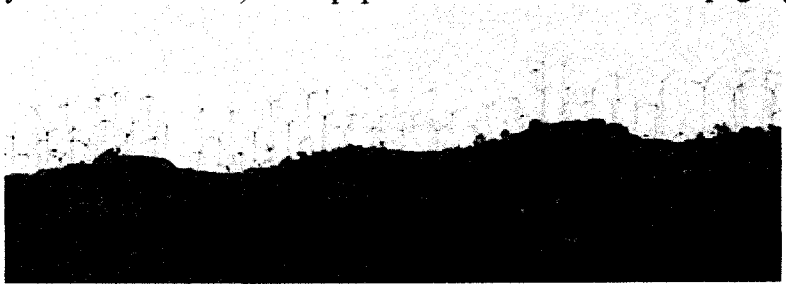
By Oliver Wright, The Independent

A Problem With Wind Power

[www.aweo.org] [click here for printer-friendly PDF] *by Eric Rosenbloom*

Wind power promises a clean and free source of electricity that would reduce our dependence on imported fossil fuels and the output of greenhouse gases and other pollution. Many governments are therefore promoting the construction of vast wind "farms," encouraging private companies with generous subsidies and regulatory support, requiring utilities to buy from them, and setting up markets for the trade of "green credits" in addition to actual energy. The U.S. Department of Energy (DOE) aims to see 5% of our electricity produced by wind turbine in 2010. Energy companies are eagerly investing in wind power, finding the arrangement quite profitable.

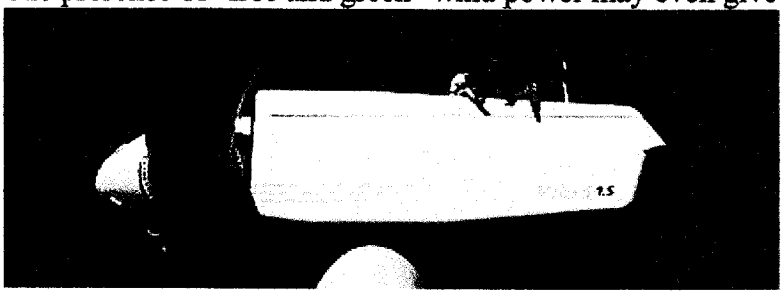
A little research, however, reveals that wind power does not in fact live up to the claims made by its advocates [see part I], that its impact on the environment and people's lives is far from benign [see part II], and that with such a poor record and prospect the money spent on it could be much more effectively directed [see part III]. Links to aid the reader's own research are provided throughout this paper as well as at the end [see Links; off-site links will automatically open to a new window or tab]. Click here for an abbreviated version of this paper. Click here for an even briefer version (a handy model for letters). This paper is also available as a 7-page typeset PDF file (156 KB) -- click here.



In 1998, **Norway** commissioned a study of wind power in Denmark and concluded that it has "serious environmental effects, insufficient production, and high production costs." **Denmark** (population 5.3 million) has over 6,000 turbines that produced electricity equal to 19% of what the country used in 2002. Yet no conventional power plant has been shut down. Because of the intermittency and variability of the wind, conventional power plants must be kept running at full capacity to meet the actual demand for electricity. Most cannot simply be turned on and off as the wind dies and rises, and the quick ramping up and down of those that can be would actually increase their output of pollution and carbon dioxide (the primary "greenhouse" gas). So when the wind is blowing just right for the turbines, the power they generate is usually a surplus and sold to other countries at an extremely discounted price, or the turbines are simply shut off. A writer in *The Utilities Journal* (David J. White, "Danish Wind: Too Good To Be True?," July 2004) found that 84% of western Denmark's wind-generated electricity was exported (at a revenue loss) in 2003, i.e., Denmark's glut of wind towers provided only 3.3% of the nation's electricity. According to *The Wall Street Journal Europe,* the Copenhagen newspaper *Politiken* reported that wind actually met only 1.7% of Denmark's total demand in 1999. (Besides the amount exported, this low figure may also reflect the actual *net* contribution. The large amount of electricity used by the turbines themselves is typically not accounted for in the usually cited output figures. Click here for information about electricity use in wind turbines.) In *Weekendavisen* (Nov. 4, 2005), Frede Vestergaard reported that Denmark as a whole exported 70.3% of its wind production in 2004. Denmark is just dependent enough on wind power that when the wind is not blowing right they must import electricity. In 2000 they imported more electricity than they exported. And added to the Danish electric bill are the subsidies that support the private companies building the wind towers. Danish electricity costs for the consumer are the highest in Europe. [Click here for a detailed and well referenced examination by Vic Mason.] The head of Xcel Energy in the U.S., Wayne Brunetti, has said, "We're a big supporter of wind, but at the time when customers have the greatest needs, it's typically not available." Throughout Europe, wind turbines produced on average less than 20% of their theoretical (or *rated*) capacity. Yet both the British and the American Wind Energy Associations (BWEA and AWEA) plan for 30%. The figure in Denmark was 16.8% in 2002 and 19% in 2003 (in February 2003, the output of the more than 6,000 turbines in Denmark was 0!). On-shore turbines in the U.K. produced at 24.1% of their capacity in 2003. The average in Germany for 1998-2003 was 14.7%. In the U.S., usable output (representing wind power's contribution to consumption, according to the Energy Information Agency) in 2002 was 12.7% of capacity (using the average between the AWEA's figures for installed capacity at the end of 2001 and 2002). In California, the average is 20%. The Searsburg plant in Vermont averages 21%, declining every year. This percentage is called the *load factor* or

capacity factor. The rated generating capacity only occurs during 100% ideal conditions, typically a sustained wind speed over 30 mph. As the wind slows, electricity output falls off exponentially. [Click here for more about the technicalities of wind as a power source, as well as energy consumption data. Click here for conversions between and explanations of energy units.] In high winds, ironically, the turbines must be stopped because they are easily damaged. Build-up of dead bugs has been shown to halve the maximum power generated by a wind turbine, reducing the average power generated by 25% and more. Build-up of salt on off-shore turbine blades similarly has been shown to reduce the power generated by 20%-30%. Eon Netz, the grid manager for about a third of Germany, discusses the technical problems of connecting large numbers of wind turbines [click here]: Electricity generation from wind fluctuates greatly, requiring additional reserves of "conventional" capacity to compensate; high-demand periods of cold and heat correspond to periods of low wind; only limited forecasting is possible for wind power; wind power needs a corresponding expansion of the high-voltage and extra-high-voltage grid infrastructure; and expansion of wind power makes the grid more unstable. [Click here for a good explanation of why wind-generated power can not usefully contribute to the grid and only causes greater problems, including the use of *more* "conventional" fuel.] Despite their being cited as the shining example of what can be accomplished with wind power, the Danish government has cancelled plans for three offshore wind farms planned for 2008 and has scheduled the withdrawal of subsidies from existing sites. Development of onshore wind plants in Denmark has effectively stopped. Because Danish companies dominate the wind industry, however, the government is under pressure to continue their support. Spain began withdrawing subsidies in 2002. Germany reduced the tax breaks to wind power, and domestic construction drastically slowed in 2004. Switzerland also is cutting subsidies as too expensive for the lack of significant benefit. The Netherlands decommissioned 90 turbines in 2004. Many Japanese utilities severely limit the amount of wind-generated power they buy, because of the instability they cause. For the same reason, Ireland in December 2003 halted all new wind-power connections to the national grid. In early 2005, they were considering ending state support. In 2005, Spanish utilities began refusing new wind power connections. In 2006, the Spanish government ended -- by emergency decree -- its subsidies and price supports for big wind. In 2004, Australia reduced the level of renewable energy that utilities are required to buy, dramatically slowing wind-project applications. On August 31, 2004, Bloomberg News reported that "the unstable flow of wind power in their networks" has forced German utilities to buy more expensive energy, requiring them to raise prices for the consumer. A German Energy Agency study released in February 2005 after some delay [click here] stated that increasing the amount of wind power would increase consumer costs 3.7 times more than otherwise and that the theoretical reduction of greenhouse gas emissions could be achieved much more cheaply by simply installing filters on existing fossil-fuel plants. A similar conclusion was made by the Irish grid manager in a study released in February 2004 [click here for 172-KB PDF]: "The cost of CO_2 abatement arising from using large levels of wind energy penetration appears high relative to other alternatives." In Germany, utilities are forced to buy renewable energy at sometimes more than 10 times the cost of conventional power, in France 3 times. In the U.K., the *Telegraph* has reported that rather than providing cheaper energy, wind power costs the electric companies £50 per megawatt-hour, compared to £15 for conventional power. The wind industry is worried that the U.K., too, is starting to see that it is only subsidies and requirements on utilities to buy a certain amount of "green" power that prop up the wind towers and that it is a colossal waste of resources. The BWEA has even resorted to threatening prominent opponents as more projects are successfully blocked. Interestingly, long-term plans for energy use and emissions reduction by both the U.K. and the U.S. governments do not mention wind [click here for more about this (the article is in Spanish)]. Flemming Nissen, head of development at the Danish utility Elsam, told a meeting in Copenhagen, May 27, 2004, "Increased development of wind turbines does not reduce Danish CO_2 emissions." Installation of wind towers cannot hope to keep up with the continuing increase of energy use. Denmark's annual production from wind turbines increased 28 petajoules (PJ, 1 PJ ≈ 278,000 MW-h) from 1990 to 1998, but total energy consumption increased 115 PJ. The International Energy Agency reports that from 1990 to 2002, Denmark's annual production from wind turbines rose 3,689 GW-h, but total electricity production rose 12,730 GW-h. The Danish government's National Environmental Research Institute reported that in 2003 greenhouse gas emissions increased 7.3% over 2002 levels [click here]. In the U.K. (population 60 million), 1,010 wind turbines produced 0.1% of their electricity in 2002, according to the Department of Trade and Industry. The government hopes to increase the use of renewables to 10.4% by 2010 and 20.4% by 2020, requiring many tens of thousands more towers. As demand will have grown, however, even more turbines will be required. In California (population 35 million), according to the state energy commission, 14,000 turbines (about 1,800 MW capacity) produced half of one percent of their electricity in 2000. Extrapolating this record to the U.S. as a whole, and without accounting for an increase in energy demand, well over 100,000 1.5-MW wind towers (costing $150-300 billion) would be necessary to meet the DOE's goal of a mere 5% of the country's electricity from wind by 2010. The DOE says there are 18,000

square miles of good wind sites in the U.S., which with current technology could produce 20% of the country's electricity. This rosy plan, based on the wind industry's sales brochures, as well as on a claim of electricity use that is only three-quarters of the actual use in 2002, would require "only" 142,060 1.5-MW towers. They also explain, "If the wind resource is well matched to peak loads, wind energy can effectively contribute to system capacity." That's a big *if* -- counting on the wind to blow exactly when demand rises -- especially if you expect the wind to cover 20% (or even 5%) of that demand. As in Denmark and Germany, you would quickly learn that the prudent thing to do is to look elsewhere first in meeting the load demand. And we'd be stuck with a lot of generally unhelpful hardware covering every windy spot in the U.S., while the developers would be looking to put up yet more to make up for and deny their failings. Click here to see what has already happened in California and Germany and would happen everywhere. As in Denmark and Germany, the electricity from those towers -- no matter how many -- would be too variable to provide the predictable supply that the grid demands. They would have no effect on established electricity generation, energy use, or continuing pollution. Christopher Dutton, the CEO of Green Mountain Power, a partner in the Searsburg wind farm in Vermont and an advocate of alternative energy sources, has said (in an interview with Montpelier's *The Bridge*) that there is no way that wind power can replace more traditional sources, that its value is only as a supplemental source that has no impact on the base load supply. "By its very nature, it's unreliable," says Jay Morrison, senior regulatory counsel for the National Rural Electric Cooperative Association. [Click here for a report on the Searsburg plant's poor record.] [Click here to read about wind power's minuscule impact on CO_2 emissions.] [Click here for a look at a U.N.-sponsored Intergovernmental Panel on Climate Change Technical Paper that similarly shows wind power's miniscule part in the mitigation of CO_2 release.] As Country Guardian, a U.K. conservation group, puts it, wind farms constitute an *increase* in energy supply, not a replacement. They do not reduce the costs -- environmental, economic, and political -- of other means of energy production. If wind towers do not reduce conventional power use, then their manufacture, transport, and construction only increases the use of dirty energy. The presence of "free and green" wind power may even give people license to use *more* energy.



II. Size

Pictures from the energy companies show slim towers rising cleanly from the landscape or hovering faintly in the distant haze, their presence modulated by soft clouds behind them. But a 200- to 300-foot tower supporting a turbine housing the size of a bus and three 100- to 150-foot rotor blades sweeping over an acre of air at more than 100 mph requires, for a start, a large and solid foundation. On a GE 1.5-MW tower, the turbine housing, or *nacelle,* weighs over 56 tons, the blade assembly weighs over 36 tons, and the whole tower assembly totals over 163 tons. [Click here for a perspective on their size. Click here for the specs of popular models.] As FPL (Florida Power & Light) Energy says, "a typical turbine site takes about a 42×42-foot-square graveled area." Each tower (and a site needs at least 15-20 towers to make investment worthwhile) requires a huge hole filled with steel rebar–reinforced concrete (e.g., 1,250 tons in each foundation at the facility in Lamar, Colo.). According to Country Guardian, the hole is large enough to fit three double-decker buses. At the 89-turbine Top of Iowa facility, the foundation of each 323-foot assembly is a 7-feet-deep 42-feet-diameter octagon filled with 25,713 pounds of reinforced steel and 181 cubic yards of concrete. The foundations at the Wild Horse project in Washington are 30 feet deep. At Buffalo Mountain in Tennessee, too, each foundation is at least 30 feet deep and may contain more than 3,500 cubic yards of concrete (production of which is a major source of CO_2). On Cefn Croes in Wales the developer built a complete concrete factory on the site, which is not unusual, as well as opened quarries to provide rock for new roads -- neither of which activities were part of the original planning application [click here for photos of the abhorrent destruction on Cefn Croes]. On many such mountain ridges as well as other locations, it would be necessary to blast into the bedrock, as Enxco's New England representative, John Zimmerman, has confirmed, possibly disrupting the water sources for wells downhill. At the Waymart plant in Pennsylvania, the foundations extend 30-40 feet into the bedrock. At Romney Marsh in southern England, foundation pillars will be sunk 110 feet. For each 6-feet-deep foundation at the Crescent Ridge facility in Illinois, another 24 feet was dug out and filled with sand. Construction at a site on the Slieve Aughty range in Ireland in October 2003 caused a 2.5-mile-long bog slide. (Building on peat bogs is recognized as a serious disruption of an important carbon sink; the Royal Society for the Protection of Birds opposes wind development on the Scottish island

of Lewis because the turbines would take 25 years to theoretically save the amount of carbon that their construction will release from the peat (not to mention the threat to birds -- see below). Clearing forests for facilities on mountain ridges is an analogous situation. Such mountaintop clearing has serious runoff implications as well as documented at the Meyersdale plant in Pennsylvania.) FPL Energy also says, "although construction is temporary [a few months], it will require heavy equipment, including bulldozers, graders, trenching machines, concrete trucks, flatbed trucks, and large cranes." [Click here for pictures of towers being installed.] Getting all the equipment, as well as the huge tower sections and rotor blades, into an undeveloped area requires the construction of wide straight strong roads. Many existing roads, particularly in hilly areas, are inadequate. For the Buffalo Mountain project, curves were widened, switchbacks were eliminated, and portions were repaved. The weight of the material has damaged existing roads. Many an ancient hedgerow in England has been sacrificed for access to project sites. The destructive impact that such construction would have, for example, on a wild mountain top, is obvious. Erosion, disruption of water flow, and destruction of wild habitat and plant life would continue with the presence of access roads, power lines, transformers, and the tower sites themselves. For better wind efficiency, each tower requires trees to be cleared. Vegetation would be kept down with herbicides, further poisoning the soil and water. Each tower should be at least 5-10 times the rotor diameter from neighboring towers and trees for optimal performance. For a tower with 35-meter rotors, that is 1,200-2,400 feet, a quarter to a half of a mile. A site on a forested ridge would require clearing 45-90 acres per tower to operate optimally (although only 4-6 acres of clearance per tower, the towers spaced every 500-1,000 feet, is typical, making them almost useless when the wind is not a perfect crosswind). The Danish grid operator Eltra has found that a turbine can decrease the production of another turbine 5 kilometers (3.1 miles) away. The proposed 45-square-mile facility on the Scottish island of Lewis represents 50 acres for each megawatt of rated capacity. FPL Energy says it requires 40 acres per installed megawatt, and the U.S. Environmental Protection Agency (EPA) says 60 acres is likely. Facilities worldwide generally use 30-70 acres per megawatt, i.e., about 120-280 acres for every megawatt of likely average output (25% capacity factor). [Click here for a list of the areas of some facilities.] GE boasts that the span of their rotor blades is larger than the wingspan of a Boeing 747 jumbo jet. The typical 1.5-MW assembly is two stories higher than the Statue of Liberty, including its base and pedestal. The editor of *Windpower Monthly* wrote in September 1998, "Too often the public has felt duped into envisioning fairy tale 'parks' in the countryside. The reality has been an abrupt awakening. Wind power stations are no parks." They are industrial and commercial installations. They do not belong in wilderness areas. As the U.K. Countryside Agency has said, it makes no sense to tackle one environmental problem by instead creating another. In Vermont, billboards are banned from the highways, and development -- especially at sites above 2,500 feet -- is subject to strong environmental laws, yet many who call themselves environmentalists absurdly support the installation of wind farms on our mountain ridge lines as a desirable trade-off, ignoring wind's dismal record as described in part I. Even if one thinks that jumbo-jet-sized wind towers dominating every ridge line in sight like a giant barbed-wire fence is a beautiful thing, many people are drawn to wild places to avoid such reminders of human industrial might. Many communities depend on such tourists, who will now seek some other -- as yet unspoiled -- retreat. **Birds, Bats, and Other Wildlife**

The spinning blades kill and maim birds and bats. The Danish Wind Industry Association, for example, admits as much by pointing out that so do power lines and automobiles. (The argument follows the aesthetic one that the landscape is already blighted in many ways, so why not blight it some more?) The industry claims that moving from lattice-work towers, which provided roosting and nesting platforms, to solid towers, as well as larger lower-rpm blades, solved the problem, and that studies find very few dead birds around wind turbines. They ignore the facts that the larger blades are in fact slicing the air faster (over 100 mph at their tips, that scavengers will have removed most injured and dead birds before researchers arrive for their periodic surveys, and that many areas where dead and injured birds (and bats -- see below) might fall are inaccessible. Especially vulnerable are large birds of prey that like to fly in the same sorts of places that developers like to construct wind towers. Fog -- a common situation on mountain ridges -- aggravates the problem for all birds. Guidelines from the U.S. Fish and Wildlife Service (FWS) state that wind towers should not be near wetlands or other known bird or bat concentration areas or in areas with a high incidence of fog or low cloud ceilings, especially during spring and fall migrations. It is illegal in the U.S. to kill migratory birds. The FWS has prevented any expansion of the several Altamont Pass wind plants in California, rejecting as well the claim that new solid towers would mitigate the problem. [Click here to read the Fish and Wildlife Service recommendations. (Click here to read new recommendations released in 2010.)] A 2002 study in Spain estimated that 11,200 birds of prey (many of them already endangered), 350,000 bats, and 3,000,000 small birds are killed each year by wind turbines and their power lines. Another analysis [click here -- the article is in Spanish] found that it is officially recognized (and obscured, generally by implying monthly figures as annual) that on average a single turbine tower kills 20-40 birds each year. The U.S. FWS noted that European wind power may kill up to 37

birds per turbine each year. The wind industry, in contrast, cites the absurdly low results of a single very spotty study at one site as gospel. *Windpower Monthly* reported in October 2003 that the shocking number of bats being killed by wind towers in the U.K. is causing trouble for developers. The president of Bat Conservation International, Merlin Tuttle, has said, "We're finding kills even in the most remote turbines out in the middle of prairies, where bats don't feed." At least 2,000 bats were killed on Backbone Mountain in West Virginia in just 2 months during their 2003 fall migration. Continuing research has found that rate to be typical all year, or even low, for wind turbines on forested ridges [click here]. Wildlife on the ground is displaced as well. Prairie birds are especially affected by disturbance of their habitat, and construction on mountain ridges diminishes important forest interior far beyond the extent of the clearing itself. A visitor to the Backbone Mountain facility wrote [click here], "I looked around me, to a place where months before had been prime country for deer, wild turkey, and yes, black bear, to see positively no sign of any of the animals about at all. This alarmed me, so I scouted in the woods that afternoon. All afternoon, I found no sign, sight, or peek of any animal about." **Noise** The same West Virginia writer found the noise from the turbines on Backbone Mountain to be "incredible. It surprised me. It sounded like airplanes or helicopters. And it traveled. Sometimes, you could not hear the sound standing right under one, but you heard it 3,000 yards down the hill." Yet the industry insists such noise is a thing of the past. Indeed, new turbines may have quieter bearings and gears, but the huge magnetized generators can not avoid producing a low-frequency hum, and the problem of 100-foot rotor blades chopping through the air at over 100 mph also is insurmountable (a 35-meter [115-foot] blade turning at 15 rpm is travelling 123 mph at the tip, at 20 rpm 164 mph). Every time each rotor passes the tower, the compression of air produces a deep resonating thump. In addition, the difference in wind speed between the top and bottom of the rotor creates a rhythm in the "swishing" of the blades through the air. The sound is projected outwards, so that it is actually fairly quiet directly beneath the turbine, but farther away the resulting sound, especially of several towers together, has been described to be as loud as a motorcycle, like aircraft continually passing overhead, a "brick wrapped in a towel turning in a tumble drier," "as if someone was mixing cement in the sky," "like a train that never arrives." It is a relentless rumble like unceasing thunder from an approaching storm. Enxco's John Zimmerman admitted at a meeting in Lowell, Vt., "Wind turbines don't make good neighbors." [Click here for one story from Fenner, N.Y., where many other noises have been described, including an eerie screeching as the blade and nacelle assembly turns to catch the wind -- click here for a video recording of these noises.] The penetrating low-frequency aspect to the noise, a thudding vibration, much like the throbbing bass of a neighboring disco, travels much farther than the usually measured "audible" noise. It may be why horses who are completely calm around traffic and heavy construction are known to become very upset when they approach wind turbines [click here]. Many people have complained that it causes anxiety and nausea. The only way to reduce it is to reduce the efficiency of the electricity production, i.e., reduce the illusion of profitability. It can't be done. Advocates, when not denying the noise outright, suggest that the wind itself masks any noise the turbine assembly makes. Rustling leaves, however, are a very different sound than the thumping of a wind facility. And in developers' output projections, they point out that the wind is very much more steady and stronger up at the top of the towers, so even that rustling down on the ground is not always there when the turbines are turning. This is often the case at night and always the case in winter. In Oregon, wind developers complained they could not comply with regulations limiting the increase of noise in rural and wild areas. In May 2004, the state weakened the noise regulations so installation of wind facilities could go ahead. The European Union (E.U.) published the results of a 5-year investigation into wind power, finding noise complaints to be valid and that noise levels could not be predicted before developing a site. The AWEA acknowledges that a turbine is quite audible 800 feet away. The National (U.S.) Wind Coordinating Committee (NWCC) states, "wind turbines are highly visible structures that often are located in conspicuous settings ... they also generate noise that can be disturbing to nearby residents." The NWCC recommends that wind turbines be installed no closer than half a mile from any dwelling. German marketer Retexo-RISP specifies that turbines not be placed within 2 kilometers (1.25 miles) of any dwelling. Communities in Germany, Wales, and Ireland claim that even 3,000 feet away the noise is significant. Individuals around the world say they have to close their windows and turn on the air conditioner when the wind turbines are active. The noise of a wind plant in Ireland was measured in 2002 at 60 dB 1 km (3,280 ft) *up*wind. The subaural low-frequency noise was above 70 dB (which is 10 *times* as loud on the logarithmic decibel scale). A German study in 2003 found significant noise levels 1 mile away from a 2-year-old wind farm of 17 1.8-MW turbines, especially at night. In mountainous areas the sound echos over larger distances. A neighbor of the 20-turbine Meyersdale facility in southwest Pennsylvania found the noise level at his house, about a half mile away, to average 75 dB(A) over a 48-hour period, well above the level that the EPA says prevents sleep. In Vermont, the director of Energy Efficiency for the Department of Public Service, Rob Ide, has said that the noise from the 11 550-KW Searsburg turbines is significant a mile away. Residents 1.5 and even 3 miles downwind in otherwise quiet rural areas suffer significant

noise pollution. A criminal suit has been allowed to go forward in Ireland against the owner and operator of a wind plant for noise violations of their environmental law. Also in Ireland, a developer has been forced to compensate a homeowner for loss of property value, and many people have had their tax valuation reduced. In the Lake District of northwest England, a group has sued the owner and operator of the Askam wind plant, claiming it is ruining their lives. In January 2004, a couple was awarded 20% of the value of their home from the previous owners who did not tell them the Askam wind plant was about to be constructed 1,800 feet away: "because of damage to visual amenity, noise pollution, and the irritating flickering caused by the sun going down behind the moving blades." The towers of this plant are only 40 meters (130 feet) high, with the rotors extending a further 24 meters (75 feet). Steve Molloy of West Coast Energy responded that loss of value of a property, although unfortunate, was not a material planning consideration and did not undermine the industry's argument that the benefits of sustainable energy outweighed the objections. [Click here for the news story.] Don Peterson, senior director of Madison Gas & Electric, which operates 31 wind towers in Kewaunee County, Wisconsin, similarly dismisses complaints, saying that most people, but not all, will get used to the sound of the machines. "Like any noise, if you don't like it, your brain is going to focus on it," he comfortingly told the Beloit *Daily News.* Especially in relatively undeveloped areas, there can be no question that the unnatural noise from a wind facility will be prominent. Just a 10-dB increase over existing levels (a typical limit for such projects) represents the subjective perception of a *doubling* of noise level. It has been reported that one of the farmers who leases land for the wind towers had to buy the neighbors' property because of the problems (not just noise but also flicker and lights at night). Wisconsin Public Service, operator of another 14 turbines in Kewaunee County, in 2001 offered to buy six neighboring properties; two owners accepted, but two others filed a lawsuit in January 2004. [Click here for a report of a study by Lincoln Township of the many ill effects of the Kewaunee County turbines.] On January 6, 2004, the *Western Morning News* of Devon published three articles about noise problems, particularly the health effects of low-frequency noise, from wind turbines. Another interesting report, which notes that the Nazis used low-frequency noise for torture, was published in the January 25 *Telegraph* [click here]. **Jobs, Taxes, and Property Values** Despite the energy industry's claim that wind farms create jobs ("revitalize struggling rural communities," says Enxco), the fact is that, after the few months of construction -- much of it handled by imported labor from the turbine company -- a typical large wind facility requires just one maintenance worker. Of the 200 workers involved in construction of the 89-turbine Top of Iowa facility, only 20 were local; seven permanent jobs were created. The average nationwide is 1-2 jobs per 20 MW installed capacity. The energy companies also claim that they increase the local tax base. But that is more than offset by the loss of open land, the loss of tourism, the stagnation or decrease in property values throughout a much wider area, the tax credits such developments typically enjoy, and the taxes and fees consumers must pay to subsidize the industry. A local "windfall" may also be offset by a corresponding loss of state funds. Even surveys by wind promoters show that a quarter to a third of visitors would no longer come if wind turbines were installed. That is a huge loss in areas that depend on tourism. The wind developers say that the turbines themselves are an attraction, but visitor centers at wind farms in Britain are already closing for lack of business. A few people get more money from leasing their land for the towers (until the developer starts withholding it for some small-print reason, or even disappears after the tax advantages slow down -- Altamont Pass in California is littered with broken-down wind towers owned by companies long gone), but that's the opposite of an argument for the general good. Wind advocates insist that property values are not affected by nearby industrial turbines, because there will always be a buyer as it's just a question of taste. That is small comfort to those who already own homes near potential wind-plant sites but whose taste militates against rattling windows and humming walls, flickering lights, 100-foot blades spinning overhead, and giant metal towers and supply roads where once were trees and moose trails. **Other Problems** The industry recognizes that the flicker of reflected light on one side and shadow on the other drives people and animals crazy. And at night, the towers must be lighted, which the AWEA describes as a serious nuisance, destroying the dark skies that many people in rural areas cherish (and that the state of Vermont is on the verge of specifically protecting). Red lights are thought to attract night-migrating birds.
Ice is another problem. It builds up when the blades are still and gets flung off -- as far as 1,500 feet -- when they start spinning. Accumulated ice on the nacelle and tower also falls off. John Zimmerman, the developer of Vermont's Searsburg facility, wrote the following to an AWEA discussion list in 2000. "When there is heavy rime ice build up on the blades and the machines are running you instinctually want to stay away. ... They roar and sound scarey. One time we found a piece near the base of the turbines that was pretty impressive. Three adults jumping on it couldn't break. It looked to be 5 or 6 inches thick, 3 feet wide and about 5 feet long. Probably weighed several hundred pounds. We couldn't lift it. There were a couple of other pieces nearby but we wondered where the rest of the pieces went." Access to Searsburg is restricted when icing is likely. (Even in good weather, they shut the turbines down when giving tours.) Issues of icing, noise, and structural damage and failure, particularly as they determine setback

requirements, have been extensively documented by John Mollica in response to the proposed expansion of a wind facility on Wachusett Mountain in Massachusetts (between Princeton and Fitchburg). [Click here for the full report or here for a briefer presentation version.] The planners of giant wind installations in Valencia, Spain, mention the dripping and flinging off of motor oil (almost 200 gallons of which may be present in a single 1.5-MW turbine) and cooling and cleaning fluids. The transformer at the base of each turbine contains up to 500 more gallons of oil. The substation transformers where a group of turbines connects to the grid contain over 10,000 gallons of oil each.
The International Association of Engineering Insurers warns of fire: "Damage by fire in wind turbines is usually caused by overheated bearings, a strike of lightning, or sparks thrown out when the turbine is slowing down. ... Even the smallest spark can easily develop into a large fire before discovery is made or fire-fighting can begin."
A 1995 study in Germany estimated that 80% of insurance claims paid for wind turbine damage were caused by lightning. Lightning destroys many towers by causing the blade coatings to peel off, rendering them useless. If the blades keep spinning, the imbalance can bring down the whole tower. The towers are subject to metal fatigue, and the resin blades are easily damaged even by wind. In Wales, Spain, Germany, France (Dec. 22, 2004; click here), Denmark (Jan. 20, 2005), Japan (Feb. 24, 2005), New Zealand (Mar. 10, 2005), and Scotland (Apr. 7, 2005; click here), parts and whole blades have torn off because of high winds, malfunction, and fire, flying as far as 8 kilometers and through the window of a home in one case. Whole towers have collapsed in Germany (as recently as 2002) and the U.S. (e.g., in Oklahoma, May 6, 2005) [Click here for an extensive compilation of accidents.] [Click here for another overview of industrial wind power's environmental problems.] **Conclusion** All of these negative aspects will only become worse if even a small part of the industry's plans for hundreds of thousands of towers becomes reality. At every level, however, the negative impacts must of course be weighed against the benefits. As described in part I, these are neglible.

It is wise to diversify the sources of our energy. But the money and legislative effort invested in large-scale wind generation could be spent much more effectively to achieve the goal of reducing our use of fossil and nuclear fuels.
As an example, Country Guardian calculates that for the U.K. government subsidy towards the construction of one wind turbine, they could insulate the roofs of almost 500 houses that need it and save in two years the amount of energy the wind turbine might produce over its lifetime. Country Guardian also calculates that if every light bulb in the U.K. were switched to a more efficient one, the country could shut down an entire power plant -- something even Denmark, with wind producing as much as 20% of their electricity, is not able to do. According to solar energy consultant and retailer Real Goods, if every household in the U.S. replaced one incandescent bulb with a compact fluorescent bulb, one nuclear power plant could be closed. John Etherington claims that switching the most-used bulb in every house of the U.K. would save as much as the entire output of all existing and proposed on-shore wind plants in that country. The BWEA itself says that the cost of saving energy is less than half the cost of producing it. According to the California Power Authority (ignoring the subsidies that lower the market price of wind-generated electricity) conservation costs exactly the same per KW-h as wind power. John Zimmerman admitted at a February 2003 meeting in Kirby, Vermont, that we "could do much more for our energy balance by just tightening our belts a little." As described in part I, wind farms do not bring about any reduction in the use of conventional power plants. Requiring the upgrading of power plants to be more efficient and cleaner would actually do something rather than simply support the image of "green" power that energy companies profit from while in fact doing nothing to reduce pollution or fuel imports. An April 2000 E.U. report found that, using existing technology, increased efficiency could decrease energy consumption by more than 18% by 2020. The U.N.-sponsored Intergovernmental Panel on Climate Change has stated that simple voluntary energy-efficiency improvements in buildings will reduce world energy use 10%-15% by 2020. They state that, with technology already in use, efficiency improvements in buildings, manufacturing, and transport can reduce world carbon emissions more than 50% by 2020. In the U.S., 61.5% of the energy used is "lost," i.e., only 38.5% of the energy consumed is actually extracted [click here]. In transmission alone, 7.34% of the electricity generated is lost. There is obviously much that can be improved in what we already have and will continue to live with for quite some time.. Electricity represents only 39% of energy use in the U.S. (in Vermont, 20%; and only 1% of Vermont's greenhouse gas emissions is from electricity generation). Pollution from fossil fuels

also comes from transportation (cars, trucks, aircraft, and ships) and heating. Despite the manic installation of wind facilities in the U.K., their CO_2 emissions rose in 2002 and 2003. At a May 27, 2004, conference in Copenhagen, the head of development from the Danish energy company Elsam stated, "Increased development of wind turbines does not reduce Danish CO_2 emissions." Demanding better gas mileage in cars, including pickup trucks and SUVs, promoting rail for both freight and travel, and supporting the use of biodiesel (for example, from hemp) would make a huge impact on pollution and dependence on foreign oil, whereas wind power makes none. Some hybrid gas-electric cars (the ones that don't just add the electric motor just for a "green" acceleration boost) already use 60% less gasoline than average conventional new cars in the U.S. Wind-power advocates often propose that wind turbines can be used to manufacture hydrogen for fuel cells. This may be an admirable plan (although *Windpower Monthly* dismisses it for several reasons in a May 2003 article) but is so far in the future that it only serves to underscore the fact that there is no good reason for current construction. And it must be remembered that as wind turbines are unable to produce significant amounts of electricity they would likewise be unable to produce significant amounts of hydrogen. On top of that, a 2004 study by the Institute for Lifecycle Environmental Assessment determined that hydrogen returns only 47% of the energy put into it, compared with pumped hydro returning 75% and lithium ion batteries up to 85%. On a small scale, where a turbine directly supplies the users and the fluctuating production can be stored, wind can contribute to a home, school, factory, office building, or even small village's electricity. But this simply does not work on a large scale to supply the grid. Even the small benefits claimed by their promoters are far outstripped by the huge negative impacts. We are reminded that there are trade-offs necessary to living in a technologically advanced industrial society, that fossil fuels will run out, that global warming must be slowed, and that the procurement and transport of fossil and nuclear fuels is environmentally, politically, and socially destructive. Sooner or later the realities of this modern life will have to reach into our own back yards, the commons must be developed for our economic survival, and it would be elitist in the extreme to believe we deserve better. So wilderness areas are sacrificed, rural communities are bribed into becoming live-in (but ineffective) power plants, our governments boast that they are looking beyond fossil fuels (while doing nothing to actually reduce their use), and our electric bills go up to support "investment in a greener future." And at the other end of this trade-off, multinational energy companies reap greater profits and fossil and nuclear fuel use continues to grow. Many alternative sources of energy, as well as dramatic improvements in the use of current sources, are in development. But wind turbines exist, so they are presented by their manufacturers and managers as *the* solution. Every effort is made to maintain the illusion that they are in fact a solution when a few simple questions reveal they are not. **Country Guardian** was founded in 1992 to oppose wind farms in unspoiled rural areas of the U.K. Their web site is at www.**countryguardian**.net. It includes a thorough summary of the case against industrial wind power, many views from people alarmed at and who have experienced the destruction wrought in the name of going green, and links to other groups fighting industrial wind installations. **National Wind Watch** is a U.S. coalition founded in August 2005. Their web site, containing key documents, a resource library, a daily news feed, FAQs, their own publications, videos, and links to over 300 allied organizations, is at www.**wind-watch**.org. A good series of newsletters is produced by **Views of Scotland** and available at www.**viewsofscotland**.org/library/publications.php. For information specific to off-shore siting of wind towers, which raises many issues not covered above, see www.**saveoursound**.org and www.**windstop**.org. For example, Greenpeace has been at the forefront of opposing the U.S. Navy's use of low-frequency sonar, because of its disruption to wildlife, particularly whales. At the same time they are at the forefront of promoting off-shore wind power plants, which produce low-frequency noise that has been measured at well over 100 dB, louder than the noise from an oil-drilling platform. The *Daily Mirror* (U.K.) reported on June 6, 2005, that scores of baby seals on Scroby Sands off Great Yarmouth were found dead -- born dead or abandoned by their mothers. Staff at the wildlife hospital involved said the wind facility there was to blame. Save our Sound, SafeWind, and WindStop were founded to organize opposition to a very large wind power project between Cape Cod and Nantucket Island off the coast of Massachusetts. The industry and government voices mentioned also can be found on line: the American Wind Energy Association at www.awea.org, the British Wind Energy Association at www.bwea.com, the Danish Wind Industry Association (in English) at www.windpower.org/en/, the U.S. Department of Energy at www.eia.doe.gov, the U.K. Department of Department of Energy and Climate Change at www.decc.gov.uk, and the Danish Energy Agency at www.ens.dk/en-us/Sider/forside.aspx. Manufacturers of large wind turbines include GE in the U.S. (www.gepower.com/businesses/ge_wind_energy/en/index.htm) and Vestas in Denmark (www.vestas.com). The GE site includes many pictures of their installations. Specifications for several models from these and other companies are collected at www.aweo.org/windmodels.html. For continuing notes on the issues raised in this paper, see the "Out of Kirby Mountain" web log. http://www.aweo.org/problemwithwind.html

ADVERSE IMPACTS FROM WIND TURBINES IN WAUBRA, AUSTRALIA AND SURROUNDING AREA

We have spent almost one year attempting to understand the complexities of wind energy. We have researched the potential benefits and acknowledged deficiencies of industrial wind turbines. We have tried to educate citizens on Cape Cod and in Massachusetts about industrial wind energy. We have tried to foster public debate, through the formation of a Cape-wide group that has sponsored public presentations by relevant experts and has disseminated technical engineering reports, clinical medical research on adverse impacts, detailed acoustic studies of the special characteristics of wind turbine noise, relevant environmental information and numerous news reports and first-person testimonials from around the world to local, state and regional governments and agencies and to the general public.

Now after traveling to Australia and meeting with and interviewing dozens of people who have been profoundly adversely impacted by industrial wind turbines or are fighting the construction of wind turbines in their communities, we now understand with certainty that the very dramatic and real problems with wind energy are much, much worse than we had previously imagined.

What follows is a preliminary summary of our visit in Australia.

We spent the afternoon of 1/9/11 with the leaders of a country-wide organization called the Australian Landscape Guardians. They explained what is happening throughout Australia concerning the siting of industrial wind turbines. They told us that the government of Victoria, Australia is currently formulating a new policy which requires a minimum setback for all new wind turbine projects of 2 km (1.24 miles). They also informed us that the new policy includes the provision that no wind turbines can be built in National Parks, State Parks, or certain areas determined as scenic in character.

Later in the day we met Sarah Laurie, MD, Medical Director of the Waubra Foundation, who arranged this amazing journey for us. We spent time with her and she explained her work to us, which is to gather information from affected residents in order to encourage researchers to conduct appropriate independent research, to lobby for funding for such research, and to provide information and support to people who have been adversely impacted by the turbines.

That night we had dinner with a group of residents in a rural area that have organized to fight several large wind developments in their communities. They requested that we describe what has been happening on Cape Cod and in MA.

The following day, on 1/10/11, we spent conducting videotaped interviews with some of the nicest and hardest working people we have ever met. Their stories are so incredible, emotional, and, ultimately so profound that we wanted to share our initial observations with you. We interviewed 17 people who have been adversely impacted from a health standpoint.

ADVERSE IMPACTS FROM WIND TURBINES IN WAUBRA, AUSTRALIA AND SURROUNDING AREA

We also interviewed a very courageous journalist who tells the stories of those in the Waubra area who are adversely impacted by industrial wind turbines.

ONGOING RESEARCH CONCERNING ADVERSE HEALTH IMPACTS TO THOSE LIVING TOO CLOSE TO INDUSTRIAL WIND TURBINES

- Sarah Laurie, MD has been meeting with the victims of the Waubra wind power plant to gather information about their symptoms and illnesses, and to help provide information about the current knowledge of the health effects of wind turbines on human health to their General Practitioners and other doctors involved in their care. As part of her work, she has requested the victims keep track of their blood pressures throughout each day to investigate the impact of the turbines on their blood pressure. Her preliminary findings indicate that a number of the victims are experiencing dangerously elevated blood pressure since the turbines became operational, which go back down to normal levels when they are away from the turbines. Victims are tracking their blood pressure readings, and there are plans to do comprehensive investigations using 24-hour Holter Monitors, as this is the best way to measure what is going on. Some of the victims have been placed on blood pressure medications. Dr. Laurie is concerned because elevated blood pressure in the morning is an indicator of increased risk for heart attack and stroke. She has learned of several people who had normal blood pressure readings prior to the wind turbines being constructed who have now developed high blood pressure, or have had heart attacks and strokes since the turbines commenced operating. There has been one death so far due to stroke. She wants these incidents further investigated, to see if there is any connection with turbine operation when these people developed symptoms.

- Dr. Laurie also feels that it is important to investigate the impact of long-term exposure to industrial wind turbines and health. Some who have lived in the Waubra area, and are now industrial wind turbine development refugees due to adverse health impacts, have found that some of their symptoms have not gone away after permanently leaving their homes near the turbines. These people report that initially, during the first months of living near the wind turbines, their physical symptoms went away when they left the Waubra area for even a matter of hours. Several people we spoke with are concerned their health problems may be permanent. Again, these people had no problems prior to the wind turbine development.

- Some of the people living within 5 km of the wind turbines at Waubra experience what was called upper lip quiver. Two of the people we interviewed talked about this. When the wind turbine infrasound is intense, people experience a sensation in their upper lip that they can not control. Their upper lip vibrates and this twitching vibration can be seen by others. The sensation is disturbing to the people experiencing this not only because the vibration is extremely uncomfortable, but the loss of control of their own body is alarming. Dr. Laurie is gathering data on the

incidence of this symptom, as it appears to be highly specific with wind turbine operation. It has been reported in residents who live up to 10km adjacent to two wind developments elsewhere in Australia. She is concerned that if these symptoms are being noted at this distance, that there may be other effects on people such as elevated blood pressures, which may go undiagnosed.

- Several people living within 5 km of the wind turbines have experienced a sensation where they have woken up at night with a feeling that their heart was about to leap out of their body. Their pulse was alarmingly high. This has happened on several occasions for each of the people we spoke with who described this symptom. Dr. Laurie is gathering data that residents are noting in their personal health journals. She is also working to encourage further research in an attempt to find out more about this phenomena.

- A local Sleep Physician has agreed to carry out further research, as he is concerned about the effect the turbines are having on the health of his patients, in particular their disrupted sleep. Sleep depravation is a major issue for the people we interviewed.

1. SETTING THE STAGE:

- Waubra and surrounding small towns are agricultural areas in a truly beautiful landscape of rolling hills and valleys. Many of the residents have lived in the area for many generations. Farming operations include sheep, cattle, poultry, and various crops. Farming is a major source of revenue in the Waubra area. The farmers we spoke with are very concerned about the environment. They use organic farming methods and practice energy conservation. Waubra is located approximately 100 km from Melbourne.

- The people interviewed described their community life as very positive prior to the Waubra industrial wind turbine power plant development called a 'wind farm'. (They know farming and stated that the 128 wind turbines have nothing to do with farming. They call this development a wind power plant.) Parents stated the schools were very good and felt their children received good educations. Family life is very important to the people we interviewed.

- Many of the victims we interviewed were older parents. Many of their grown children who work on the farms planned to take over the family farms as their parents retired.

- All of Australia, including Waubra, has experienced 10 consecutive years of severe drought. This is very important as it had a significant impact on the development of the wind power plant.

ADVERSE IMPACTS FROM WIND TURBINES IN WAUBRA, AUSTRALIA AND SURROUNDING AREA

- The Australian government, like the U.S., has placed a major emphasis on developing and deploying renewable sources of energy, especially wind energy. As in the U.S., Australia has set a target of 20% of its energy to come from renewal sources by 2020. The government provides generous subsidies and tax breaks to wind energy developers.

- Three or four years ago local farmers in the Waubra area began to be contacted by 'salesmen' who signed up land owners to host wind turbines. The people we interviewed stated that the initial presentations were long on lofty claims and very short on facts. Some of the people we interviewed attended informational meetings and stated that the presenters claimed there were no problems with noise. The salesmen stated that the turbines sounded like leaves blowing in the wind or a stream – similar to claims we have heard in the United States that wind turbine noise is "no louder than a babbling brook, a refrigerator or a quiet conversation."

- Here is where the prolonged drought played an important role. Many farmers, especially smaller land holders, had suffered financially and they felt the wind turbine lease payments represented a life-line to help them through the difficult drought. So many signed up. IT IS IMPORTANT TO NOTE: some of the residents that did not sign up had reservations about the wind 'farm', but they did not raise their concerns because they were told by the salesmen that there were no problems and they did not want to interfere with their neighbors earning much-needed money from leasing their land to the wind energy developers. Their considerations for their neighbors would take a tragic turn following the construction of the wind energy power plant.

- Construction of the Waubra wind energy power plant was completed in the fall of 2009. There are 128 industrial wind turbines covering an area of many miles.

- Many of the residents we interviewed, and presumably the people who leased their land, were shocked by the size and placement of the turbines following the construction. We were told that many residents felt lied to due to the actual size and placement of the wind turbines.

2. WHAT WE OBSERVED:

- All of the residents we interviewed have suffered a profound impact on their health, their relationships with family and their community, their confidence in elected officials, their financial condition and property value, and their life plans and future. They all feel betrayed and they are extremely angry. Here are the reasons why:

- *All of the people we interviewed are sick -- very PHYSICALLY ILL, as confirmed by a medical doctor, and in many cases by their family physicians.* Their symptoms track with the symptoms we have heard experienced by the

victims in Falmouth, MA; Vinalhaven, Maine; and many other communities globally. It was abundantly clear from these interviews, which we videotaped, that the suffering of the victims has been severe. They report severe headaches, eye pain, difficulty sleeping, emotional distress, racing hearts, dangerously high blood pressure, ringing in their ears, panic attacks, feelings of hopelessness, inability to concentrate, and inability to find simple words when speaking. Children are experiencing the same symptoms as their parents. The parents we interviewed reported that their children's performance in school has radically declined since the wind plant began operation. Many we interviewed are under the care of physicians and take medication that they did not take prior to the wind turbine development. ALL THESE SYMPTOMS DEVELOPED AFTER THE TURBINES BEGAN TO OPERATE. It bears noting that the residents we interviewed, many of whom are farmers, were all healthy and hearty people who had spent their entire lives working outdoors. They are proud, and solid citizens. THEY ARE NOT COMPLAINERS...JUST THE OPPOSITE. Nonetheless, they can not ignore, nor overcome, their persistent symptoms that began to affect them, to threaten their health, and to disrupt their lives, since the arrival of the wind plant to their community.

- REASON FOR A RED CODE ALERT: Many of the victims we interviewed lived from 3 km to 10 km from the turbines. A two km (1.24 mile) setback at this wind power plant location would not have helped most of these victims. Because as farmers their livelihood depends on the weather they are acutely aware of wind direction. Some reported that the noise and health problems are worse when the wind is blowing away from their homes. Why? Because the audible sound and infrasound bounced off surrounding hills/rock formations. We were told by several that it is worse inside their home than outside because their window jambs rattle and their homes vibrate. One couple told us that their home vibrates like a cell phone when the sound is intense.

- All the victims we interviewed used similar descriptions when explaining their symptoms, a fact which will become apparent to anyone viewing the videotaped interviews. They all describe feeling 'pressure' on their chest, their heart, their head, their ears and their eyes. Some have already declared themselves to be 'INDUSTRIAL REFUGEES' and have abandoned their beautiful and long-cherished homes. Others are considering leaving. Still others are determined not to leave even though their health has declined dramatically. The despair of the residents is evident as they describe this most difficult decision of whether to stay, or to abandon their homes.

- We interviewed one resident who said that she is in such pain at times she thinks that putting a bullet in her head would bring more relief than the pain she is experiencing.

- Some of the people we interviewed told us they believe that many of their neighbors who signed the leases and are hosting the turbines are suffering physical adverse health symptoms as much as they are. They stated that the land owners who signed the leases are prohibited from talking about their health problems because of the gag-clauses in the leases.

- Those who have left their homes all report that their health problems have become less severe when they are away from the wind power plant. Most state that when they leave the Waubra area they feel better and that their blood pressure readings return to normal levels. But, it is very important to note, that some of the symptoms for some of the people have not gone away. Some are concerned their health problems may be permanent. The physician we talked with shares their concern.

3. SENSE OF COMMUNITY:

- THIS IS A TRAGEDY OF MONUMENTAL PROPORTION. According to many residents we interviewed, the Waubra area community, in their view, has disintegrated. Five generations of citizens, many life-long friends, have become adversaries. As we listened to the residents describe what has happened, we were very sad to see the emotional toll it is taking on these fine people who highly value the sense of community. One story told was that the local pub recently closed because former friends refuse to socialize together. We heard stories of violence, including an incident when one victim publicly stated his health problems and neighbors (former life-long friends) who leased land for the turbines sought revenge. Some residents told us that they now drive to near-by towns to go to the grocery store or the Post Office because they are verbally attacked in Waubra. One person stated it is their belief it will likely take a generation -- after the turbines are removed -- before the social healing can begin for their community.

4. IMPACT ON ANIMALS:

- The health of animals is naturally very important to farmers. Many of the residents told us that the wind turbines had an adverse impact on their animals.

- One farmer stated that when the audible sound and also when the infrasound are bad, their chickens lay eggs without shell. The birds are also extremely nervous and agitated, displaying abnormal behavior.

- One farmer raising sheep stated that 44% of his new born sheep died shortly after birth since the wind turbines began operation -- a very sharp increase above normal circumstances.

- Another farmer described how he had to 'put down' a blind sheep that had managed to take care of herself until the turbines began operation. After the

turbines started, the sheep walked in circles and kept injuring herself walking into objects, so the farmer euthanized her.

- Others stated their dogs who are normally quite calm 'act up' when the wind turbines are loud from an audible standpoint and also when the infrasound is bad (note that dogs and other animals have a wider range of audible hearing than humans).

- Others stated that all the bats in the area disappeared once the turbines began operation.

5. IMPACT ON VIEW AND AESTHETICS OF RURAL ENVIRONMENT:

- The people we interviewed had all consciously chosen to live in the rural countryside. As previously noted, many we interviewed have maintained family farms in the area for multiple generations. Virtually all of them were heart sick at the wholesale transformation of their environment and what they characterized as the destruction of their land. Like many on Cape Cod who love the beauty of the sea, the dunes, the vistas, and the rural character of the Cape, the people we interviewed felt a profound sadness and loss regarding the industrialization of their community.

- One person we interviewed stated she could see 64 turbines from her land. At night the once tranquil vista now looks like an amusement park with dozens of red blinking aviation warning lights atop the turbines.

- Many of the people living in the Waubra area have powerful telescopes that they once used to enjoy the vast night sky in Australia. This was a popular hobby that used to bring great pleasure to many here, but the people in the region can no longer use their telescopes because the night sky is filled with pulsing red lights from the wind turbines.

- One resident gave us a written diary containing a day-by-day account of the noise emanating from the turbines and her observations of the adverse effects upon her health. She also wrote about the beautiful sunsets and sunrises that were spoiled by the flashing red lights – a record of observations which illustrates her love of her natural environment and her sense of permanent loss.

- One of the industrial refugees said that everywhere she looked there was movement. She couldn't stand it physically. She has motion sickness and it made her sick to her stomach and dizzy when she looked out of her windows. She reported that she found it unbearable to go outdoors and work in her garden, one of her favorite past times. In the Waubra area, every person we met had a beautiful flower garden as well as vegetable garden. They all took great pride in their garden.

- The Waubra area once was a rural, peaceful, serene location and it was evident to us from the testimonials we heard, that the hearts and souls of the residents we interviewed were tied to the land. They repeatedly described their rural location as being ruined, and turned from a peaceful countryside into an industrial zone.

- As in many similar locations around the world, including Falmouth, MA and Vinalhaven, Maine, most of the people we spoke with had supported the wind turbine development until it became operational. They now described how sad they were that their beautiful landscape is marred with the wind turbines. Some told us that this is not a place people want to come visit since its former beauty, and its sense of peace and tranquility, are now gone.

6. IMPACT ON LIFE GOALS:

- What can one say? The lives of many residents that we interviewed have been completely upended, even shattered, as is evident from their videotaped accounts. Like most people, they had a plan for their future. Many had taken for granted that they would continue to work their land and pass the family farm to their children.

- One resident purchased a 300 acre farm in the Waubra area to grow organic crops and livestock three years ago, about one year before the turbines began operation. Now he can not work on areas of his farm because the pain he experiences is too severe.

- Another family owns and farms a 4,000 acre property. When the wind developer offered them lease payments for eight turbines and extra income for transmission lines, they turned the offer down because they don't need or want any outside interests in their farm. They have now abandoned their beautiful home. During our videotaped interview, the mother of young children became extremely emotional when she described the decision to leave their family home and how that decision impacted her children.

7. GREEN JOBS:

- When we asked about 'green jobs' created by the wind turbine development, the residents told us that they knew of one local man who rides around in a truck and picks up dead birds. As far as those we talked to about this know, there are no other full time jobs created by the wind energy power plant.

- Residents told us that when they call to lodge a complaint, they reach people who they think are in remote call centers, which they presume to be India from the accents they hear on the phone. One person told us that when he requested that the wind energy company send a representative to come out to his home to listen

to the noise level on a very loud night when he could not sleep, he was told that there was no one in the area to do this.

8. THE WIND ENERGY COMPANY RESPONDING TO COMPLAINTS

- Residents told us that the wind energy company has given them a phone number to call when they have a complaint. The wind energy company is mandated by contract to respond to the complaints.

- One resident who lives approximately 3.5 km from the wind plant told us that he had called seven months previously to register a complaint about the noise and to tell the wind company that he has adverse health effects. A company representative told him he "would look into it" but the company has not contacted him. The resident said that the noise is still loud and that he does not believe that the company has taken his calls seriously. The same resident told us that he called the company one night when the noise was very loud to report that he could not sleep and that his blood pressure was dangerously high. He was told that his complaint had been recorded and someone would get back to him but no one from the company has ever contacted him to follow up or investigate.

- One resident who lives over 2 km from the nearest turbine, and who has made numerous complaints, was told that no one was responding to his complaints because he lived "too far" from the wind turbines.

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